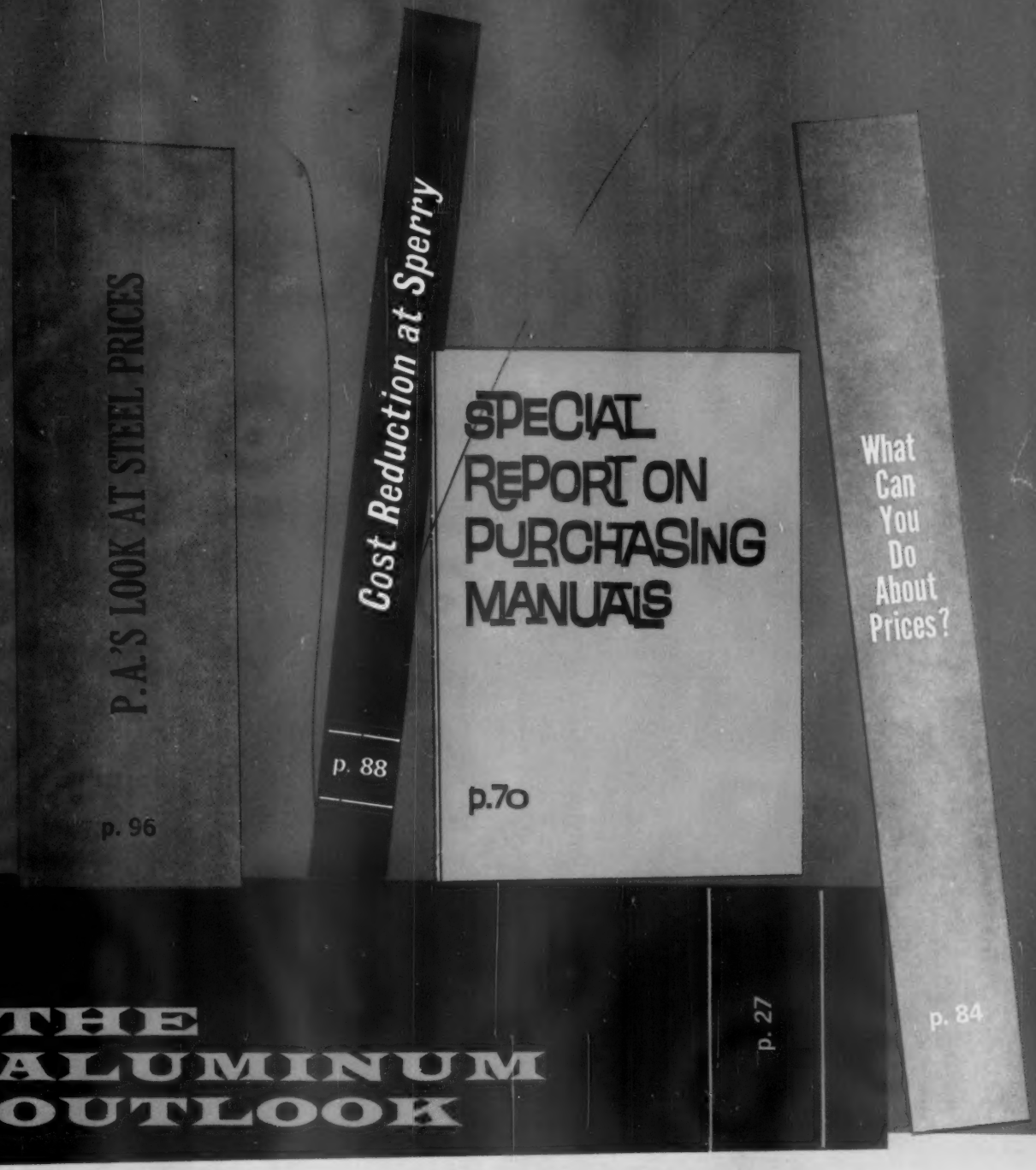
OCTOBER 9, 1961

# PURCHASING

THE METHODS AND NEWS MAGAZINE FOR INDUSTRIAL BUYERS




A CONOVER-MAST PUBLICATION SEVENTY-FIVE CENTS

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# NEW—TWO LOW-COST MINIATURE BALL BEARING LINES

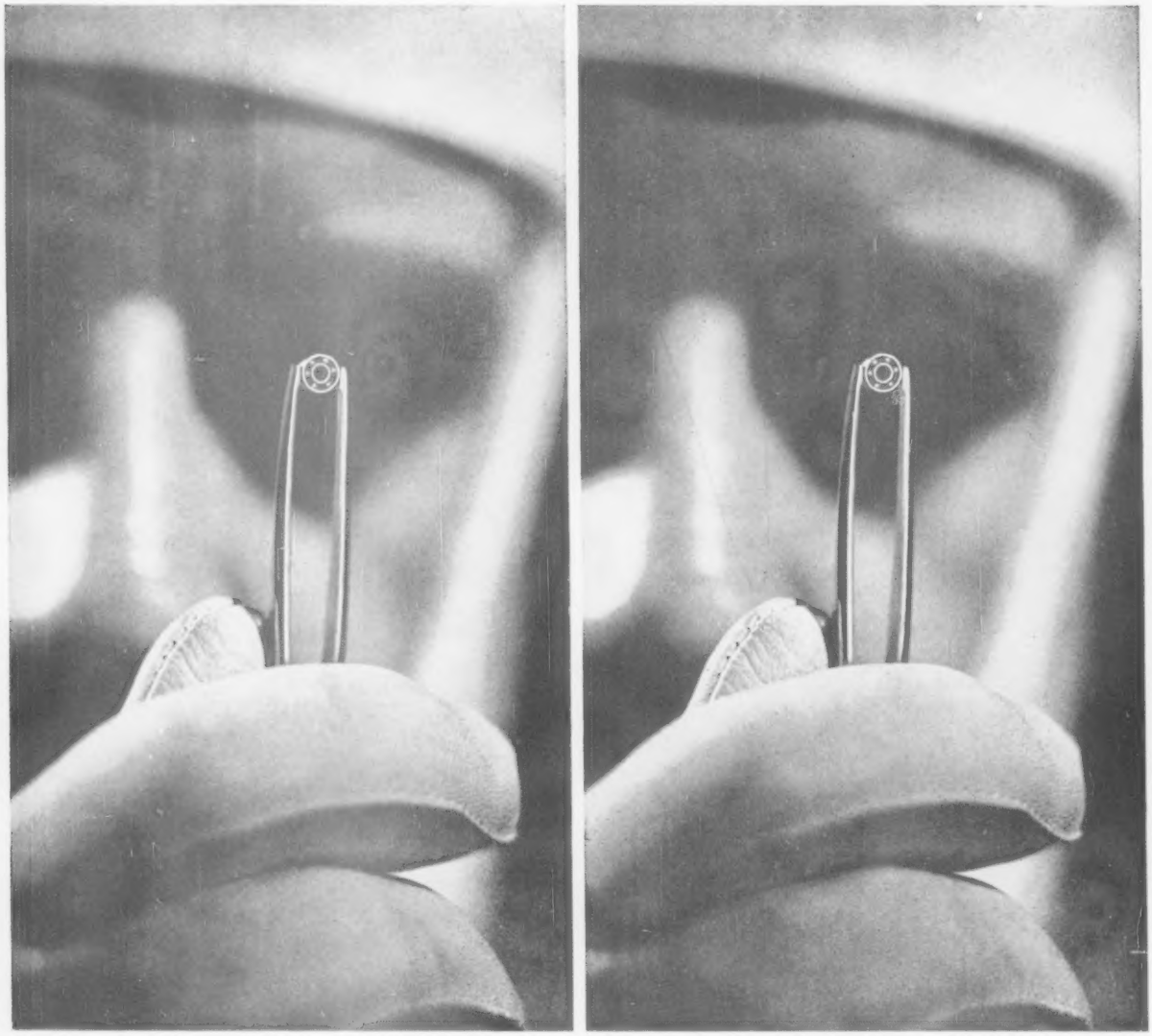
**New Departure ABEC 3* and ABEC 5* miniature ball bearings** now offer manufacturers of precision miniature potentiometers, gear trains, motors and similar precision products the opportunity to reduce bearing costs substantially.

New Departure ABEC 3 and ABEC 5 bearings can be used wherever the high precision and performance of ABEC 7 bearings are not required. They offer the engineer greater design versatility—he can select the most economical bearing for each application. Moreover, New Departure ABEC 3 miniature ball bearings can be used to upgrade products presently using precision sleeve bearings.

New Departure will continue to offer super precision ABEC 7 miniature ball bearings for your highly critical applications.

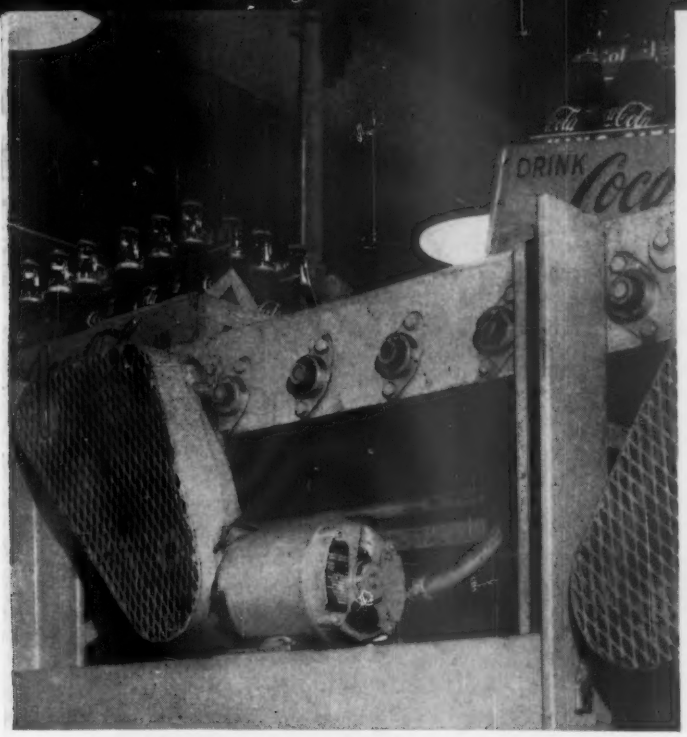
If you are planning a re-evaluation of your miniature bearing applications, it will pay you to consult the N/D Sales Engineer in your area. His assistance may help pave the way to reduced parts cost or enhance the quality of your product. For more information, write for booklet AST, NEW DEPARTURE, DIVISION OF GENERAL MOTORS CORPORATION, BRISTOL, CONN.

*Bearing tolerances as established by the Annular Bearing Engineers Committee of the Anti-Friction Bearing Manufacturers Assoc.

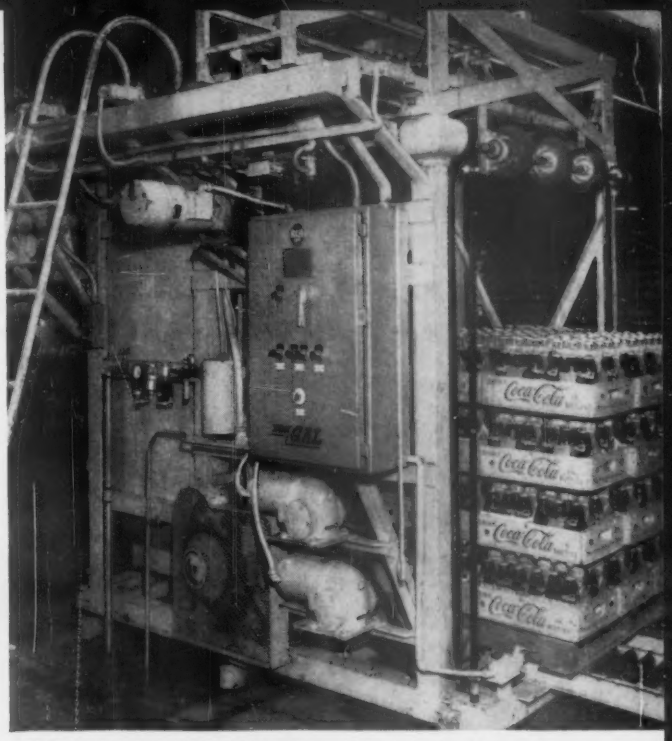


NEW DEPARTURE
MINIATURE AND INSTRUMENT BALL BEARINGS

For More Facts Write No. 151 on Information Card—Last Page




1 Century's compact IR 48-frame gearmotor driving live roll conveyor to the top of pallet loader.



2 A Century 1R64 SC64 gearmotor with brake (in upper left of picture) raises and lowers pallets from empty pallet conveyor to loaded pallet conveyor.



3 Loaded pallets being picked up by lift truck. Century 1R66 SC66, ¾ horsepower gearmotors drive empty and loaded pallet conveyors.

# Century gearmotors load, stack and convey thousands of soft drinks per day

Century Electric's single-reduction, right-angle gearmotors are built right into the versatile pallet loader shown here. Thousands of bottles of soft drinks a day are conveyed, stacked, loaded onto pallets and conveyed to fork lift trucks by Century's gearmotors.

Century gearmotors, with silicon bronze worm gears and hardened high-grade steel worms, are designed and built to withstand sudden shocks and overloads in applications such as this pallet loader. Motor shafts are not affected by operational strains because mounting feet are an integral part of the housing (except the IR 48-frame). Also, motor shafts are carried on ball bearings and output shafts run in tapered roller bearings to withstand sudden shocks.

All-angle oiling design assures complete lubrication. Worms or worm gears dip into oil, no matter how the gearmotors are mounted.

The gearhead on the IR 48-frame gearmotor (Picture No. 1) can be assembled in four different positions in relation to the motor, and the motor can be mounted at any angle. The new 1R 48-frame gearmotor is also very compact. With it you can reduce the weight of your product by as much as 20 pounds.

For more information about Century's complete gearmotor line from ⅛ to 125 horsepower, call your nearest Century Sales Office.

**CENTURY ELECTRIC COMPANY**

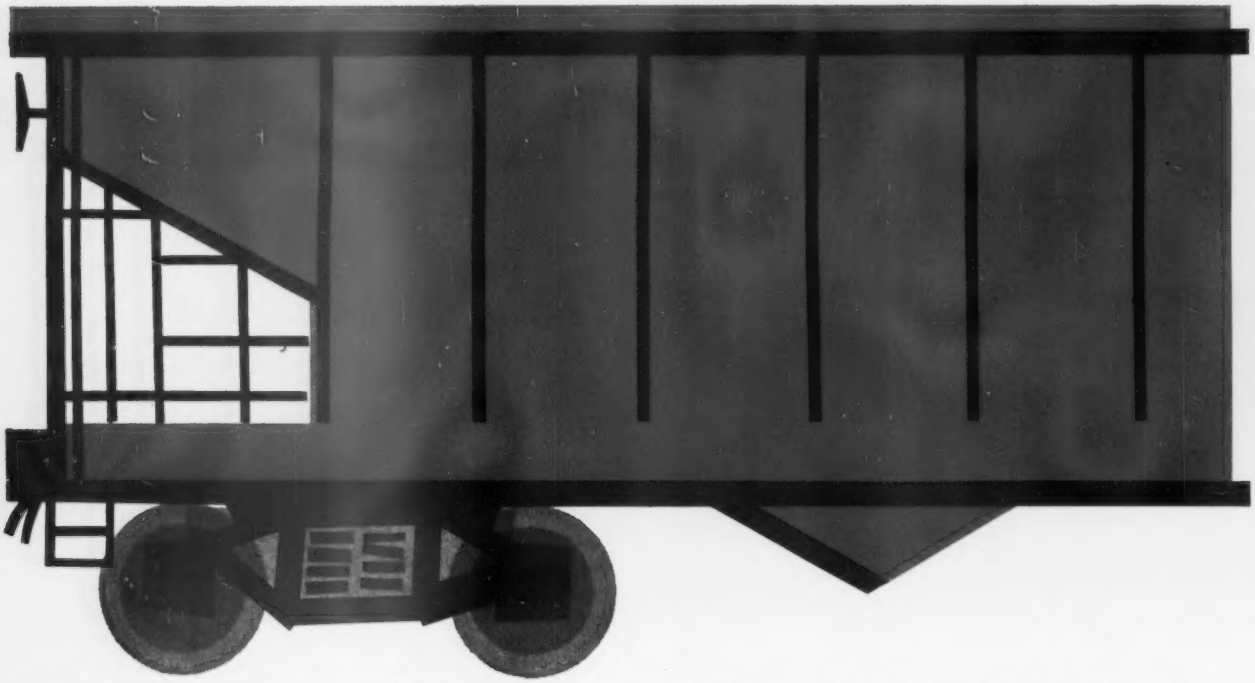
**St. Louis 3, Missouri** *Offices and Stock Points in Principal Cities*

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Century

60-2

# How to design a 30% lighter body



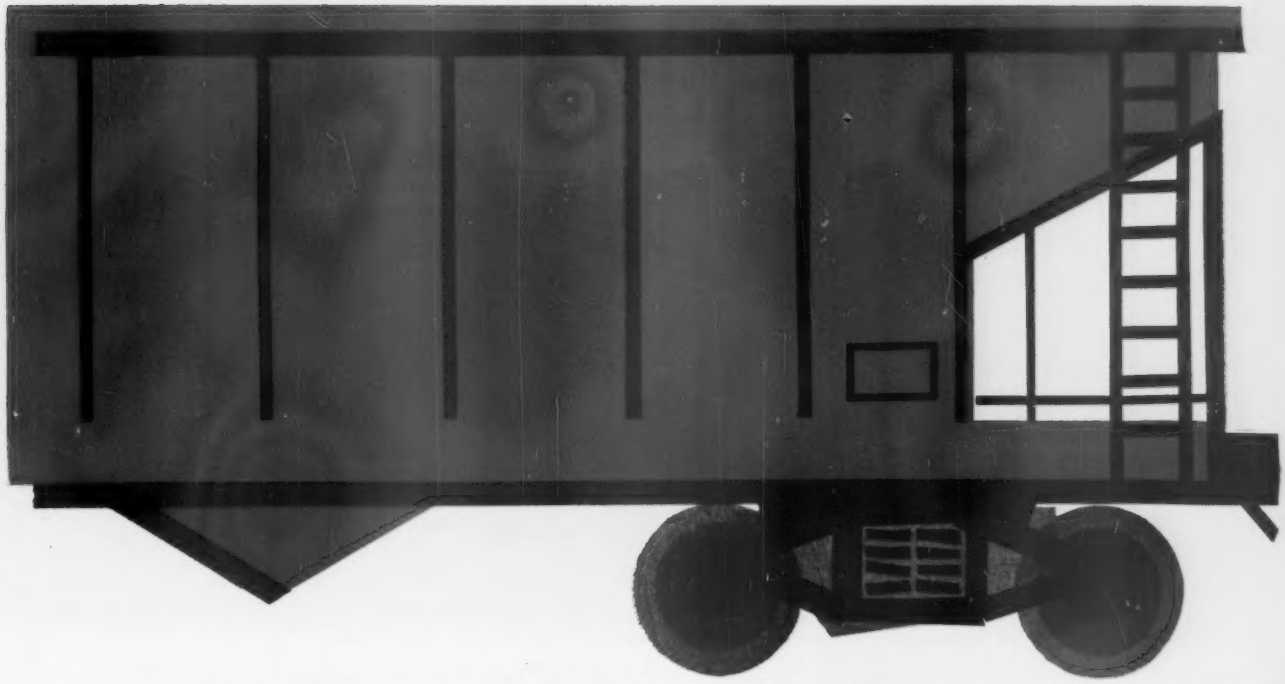
**Here is a 70-ton hopper car that has yet to be built . . .** but dramatic savings in weight at a nominal material cost can be made by designing it with USS "T-1" type A Constructional Alloy Steel Plate and USS Quenched and Tempered "T-1" type A Structural shapes now available.

**Save 8,250 pounds of steel!** A standard 70-ton capacity hopper car body fabricated in high-strength low-alloy steel and carbon steel plates and shapes normally weighs approximately 28,000 lbs. According to a special design study, the substitution of USS "T-1" type A Steel in certain components can result in a weight savings of about 8,250 lbs. The material cost for this design utilizing USS "T-1" type A plates and structurals, based on mid-1961 prices, is only $230 more than the present conventional hopper car. This means that a slight increase in the total cost of the steel itself can accomplish a significant weight reduction of 8,250 lbs.—nearly 30% of the existing body weight. Of greater importance is the potential 6% increase in over-all lading capacity realized through this savings in weight. Additional savings could be expected in hopper cars of greater capacity.

**Greater payload offsets initial cost.** Every pound of dead weight transported by a railroad is done so at the expense of a pound of potential payload per trip made during the life of a car. With

This mark tells you a product is made of modern, dependable Steel.

# with USS "T-1" type A Steel



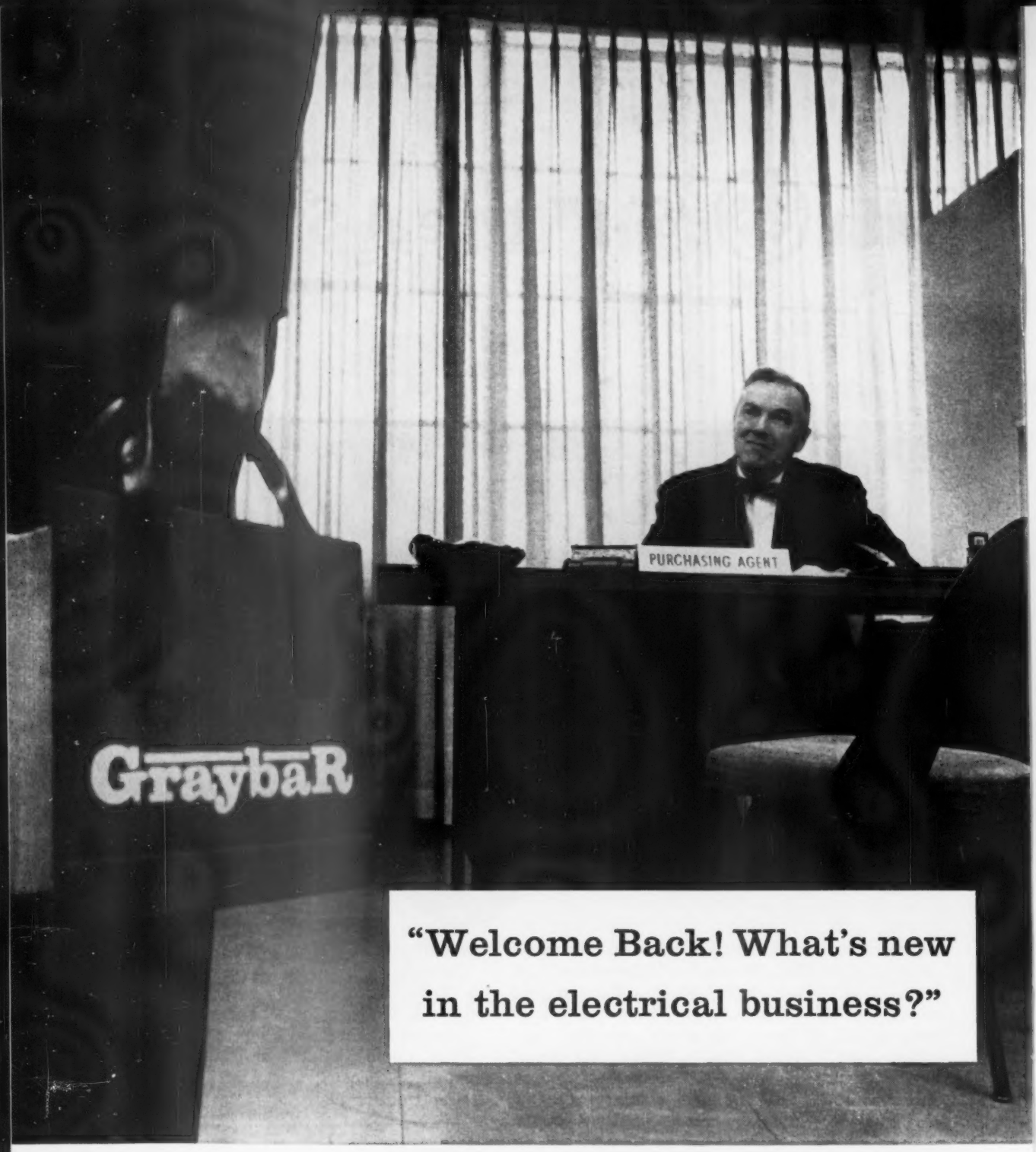
additional lading capacity, greater payloads possible would quickly offset the small additional steel cost involved. USS "T-1" type A Steel's minimum yield strength of 100,000 psi permits its use in thinner sections with accompanying weight reduction. Secondary benefits which accrue through the use of this exceptional constructional alloy steel include improved abrasion resistance, greater ability to withstand impact, and lower maintenance costs. All of these factors promote longer, economical service performance.

Our new quenched and tempered structural alloy shapes are now available in USS "T-1" and "T-1" type A Steels in the more commonly used sizes of wide flange (CB's) and American Standard beams, channels, equal angles and unequal angles.

For more information on USS "T-1" and "T-1" type A Steels, or on the new USS Quenched and Tempered Structural Shapes, write United States Steel, Room 6388, 525 William Penn Place, Pittsburgh 30, Pennsylvania. USS and "T-1" are registered trademarks.

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OCTOBER 9, 1961
VOLUME 51, No. 8

# PURCHASING

THE METHODS AND NEWS MAGAZINE FOR INDUSTRIAL BUYERS

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A comprehensive 14-page report covering every phase of purchasing manuals from their function to how to do it.

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# Pulse of Business

## Defense Buildup Boosts GNP

**The defense buildup has become an important factor** in the economic recovery. Gross National Product in the third quarter reached a record annual rate of $526 billion, $10 billion above the second quarter rate. It appears now that the GNP rate by the end of the fourth quarter will be about $540 billion—thus boosting the 1961 GNP 3% above 1960.

This increase in GNP is reflected in personal income figures. Personal income in August can be said to have gained over the previous month if the one-shot payment of a veterans insurance dividend in July is not taken into account. **August personal income was at an annual rate of $419.3 billion,** compared with $421.1 billion in July and $405.2 billion in August 1960.

## Consumer Income Flows To Savings Accounts

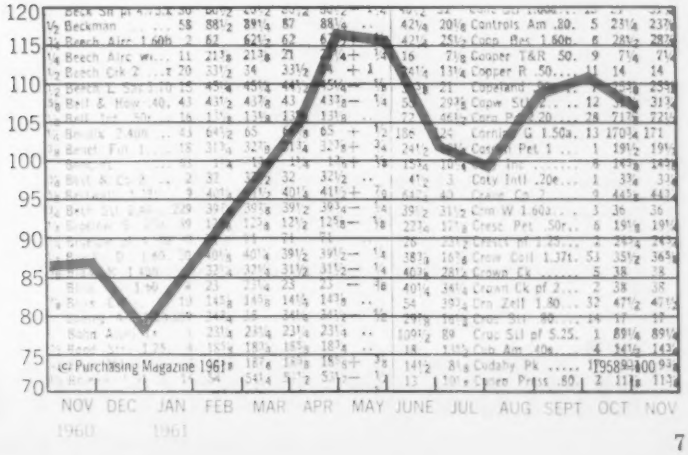
**But retail sales have not kept pace** with the rise in consumer income and a larger than normal amount of income is going into savings. Prospects for sales of consumer goods, including automobiles, are good, however. Estimates of gains for 1962 range from 4% to 7% above the current year.

**A large portion of the 1962 gain will probably be in the automobile field.** Economists for auto companies are predicting gains in new car sales of up to 20% with unit volume next year ranging between 6.2 million and 7 million cars. Estimated sales for this year are 5.8 million cars—including 400,000 imports. If 1962 sales exceed 6.5 million, it would be the second best year in history (1955 sales totaled 7.9 million cars).

**Observers believe that the rise in the cost of services**—many of which are not obtained through retailers—has been a factor in preventing retail sales from keeping pace with the rise in consumer income. For example, in the last ten years, expenditures for medical care have risen more than 120%; housing and house operations, 75%; recreation, 70%; and transportation, 60%. Food ex-

### Business Confidence Index

How P.A.'s feel about the short-term economic outlook




Purchasing Magazine's Business Confidence Index declined four points in October to 107 (1958 = 100). This indicates that P.A.'s are a little less optimistic about short-term business conditions in their industries than they were last month.

**These Gates Hoses are in use on this Atlas project:**

| HEAVY DUTY WATER HOSE | SATURATED STEAM HOSE | SUCTION AND DISCHARGE HOSE | WIRE BRAID AIR DRILL HOSE | ALL-PURPOSE OIL-PROOF HOSE |
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| 35W—For discharge side of centrifugal, piston and diaphragm pumps. | 200MB—Extra, built-in safety; 200 psi working pressure. | 1200SB—Rugged, for heavy duty petroleum transfer. | 18MB—A premium hose for extra heavy duty. Flexible, easy to handle. | 19B—Gives long service handling oil, gasoline, grease, air and water. |



# Atlas Missile Base contractor relies on Gates Hose

In building a group of 12 emplacements for the Atlas ICBM near Salina, Kansas, Gates Hose was chosen by the prime contractor for use throughout the construction. Thousands of feet of Gates Hose for air, suction and discharge, water and steam are giving outstanding service in constant use under severe working conditions.

This project is under the supervision of the U.S. Army Corps of Engineers. The contractors are Utah-Manhattan-Sundt, a joint venture headquartered in San Francisco.

**Gates makes a hose for every industrial application**—every type of hose in a full range of sizes. All are dependable, top-quality products of Gates continuing program of *Specialized* Research.

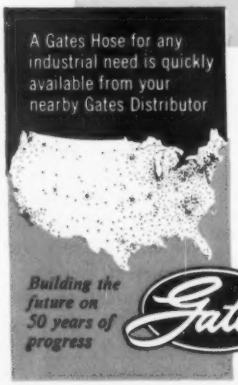
**You get fast delivery from local stocks.** The hundreds of Gates Distributors, located in all parts of the country and throughout the world, have large stocks of hose on hand, backed by Gates Stocking Service Centers in every major industrial area.

This means that you always get quick delivery of Gates Hose from a local source.

*Call your nearby Gates Distributor when you need hose of any kind, for any purpose.*

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- Engine Coolant Hose
- Welding Hose
- Hydraulic Hose




The Gates Rubber Company, Denver, Colorado BP 48A

# Gates Industrial Hose

For More Facts Write No. 157 on Information Card—Last Page

penditures in the same period have risen less than 50%.

Other living costs are also rising. The consumer price index has surpassed 128% of the 1947-49 average with higher food prices responsible for a fractional rise in recent months. Generally speaking, however, **living costs have been remarkably stable in the last three years,** considering the rise in labor costs.

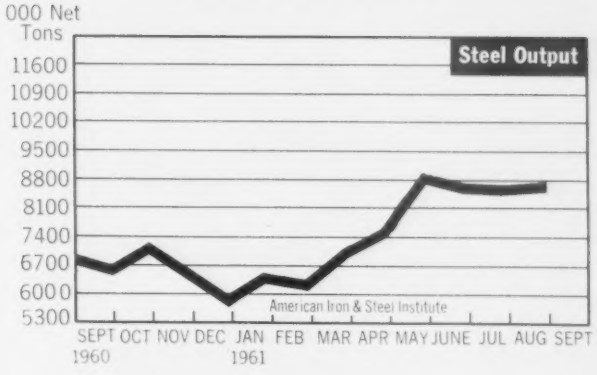
**President Kennedy will continue to press** for restraint in commodity price increases. This was evident in his move to talk over the steel pricing situation with Roger Blough, chairman of U. S. Steel Corporation, after all major steel companies had replied somewhat negatively to the President's letter asking for price restraints.

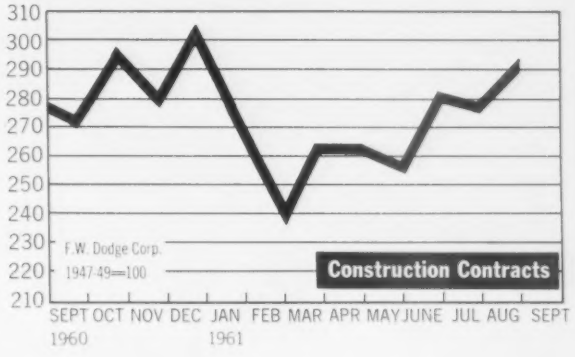
In answering the president's letter, the steel companies refused to commit themselves one way or the other. They said that while they share the President's concern over inflation, **they are faced with rising costs and a need for plant modernization.**

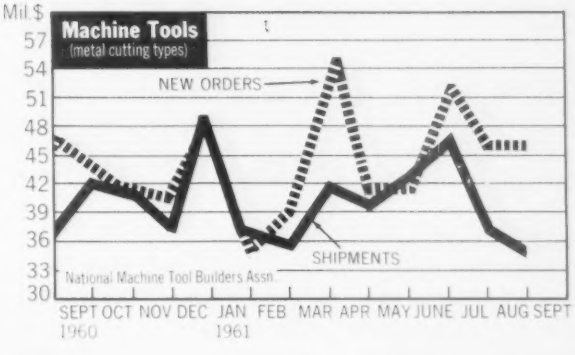
The steel companies are hesitant to make any pledges about prices because they realize that demand for steel will govern their future actions. If market conditions won't permit steel producers to pass along labor wage increases, then they will have to speed up the construction of more efficient production units. Recent estimates indicate that United States steel producers are planning to increase their capacity to 160 million tons by 1965.

If consumption in 1965 will not utilize full capacity of steel mills, **the producers plan to use their newest plants to their fullest extent, leaving the older units idle.** What might appear to be over-capacity is actually the steel industry's answer to an increase in labor costs that is not bringing a comparable rise in productivity. (Turn Page)

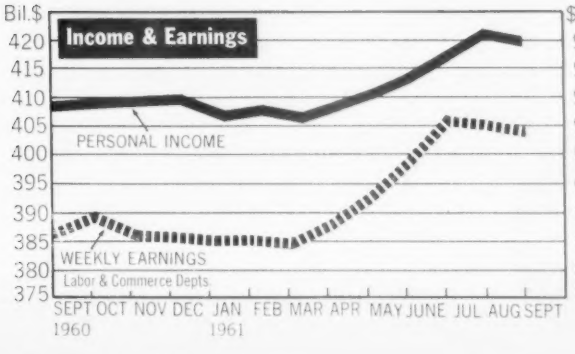
## PRODUCTION

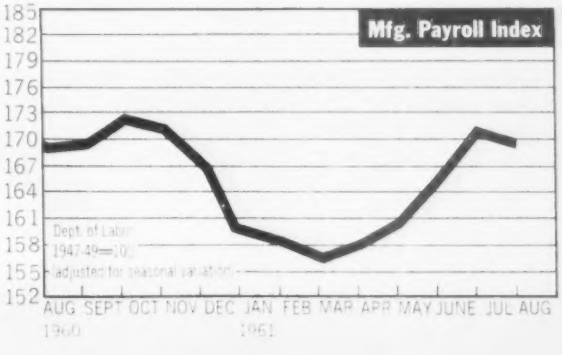


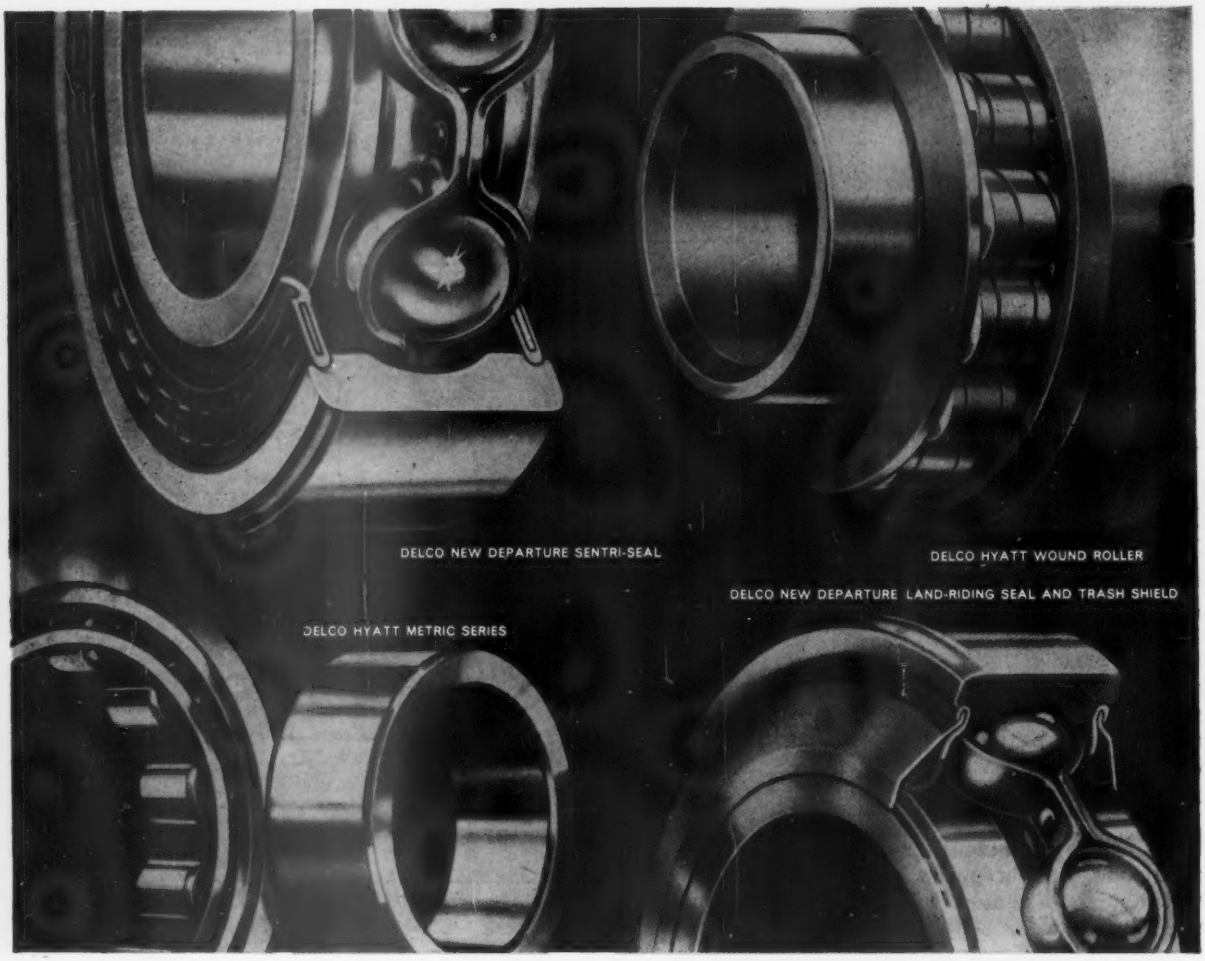




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UNITED MOTORS SERVICE, Division of General Motors Corporation

For More Facts Write No. 158 on Information Card—Last Page

**The increase in steel capacity in other countries** is something that is giving producers here deep concern. It is conceivable, for instance, that Eastern European and Asiatic steel producers will soon be looking for export markets.

By 1965, steel capacity of the Soviet Union is expected to increase about 40% from the 1960 figure to a figure of 100 million tons. Red China will be producing 40 million tons by that time. Unless there is a sharp step-up in the output of durable consumer goods, such as appliances or cars, **it is a safe bet that Communist countries will be using steel for trade offensives.**

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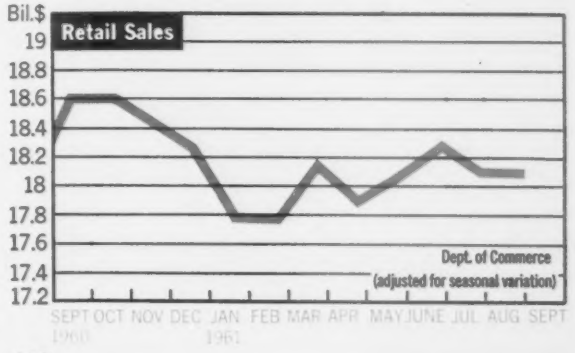
"RECOVERY FROM THE 1960-61 recession is now an accomplished fact" and the fourth quarter will probably be good for business. So says the September business survey report of the National Association of Purchasing Agents.

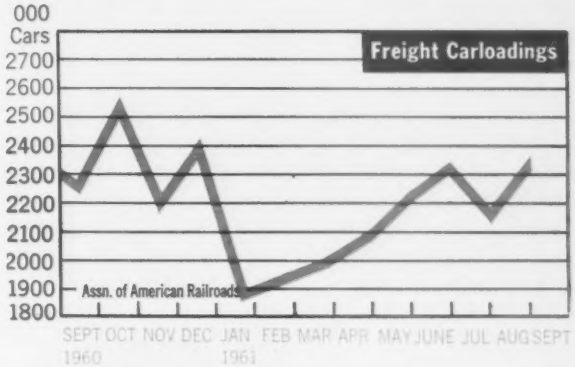
The committee, headed by E. F. Andrews of Allegheny Ludlum Steel Corporation, says that **"New order and production figures are most encouraging this month."** But it notes these vital problems that buyers are concerned about: labor cost increases, sagging profits, prices, lengthening lead times, government spending, and inflation.

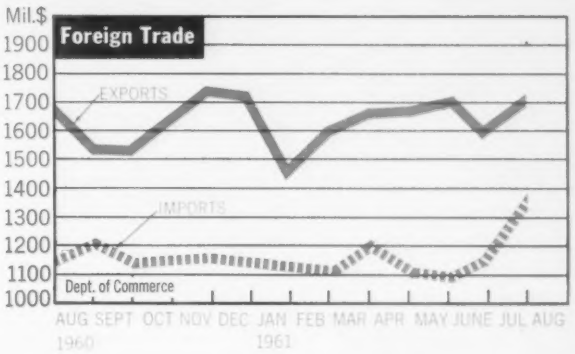
Andrews says that **"Price levels in September showed a marked reaction to the quickening tempo of business activity** . . . Indications are that the stability mentioned in our August report may now be weakening in the face of growing pressure."

**No "dramatic change occurred in the buying policies** of purchasing executives during September," notes the report. "Vendor lead times remained the controlling factor and respondents tell us these are under constant review.

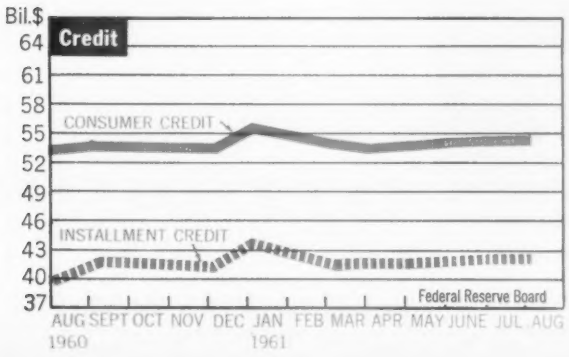
## TRADE

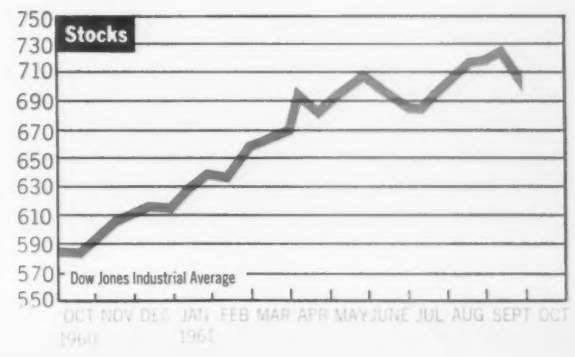



## FINANCE






# from Ryerson

Nearly forty years ago, Elkay Manufacturing Company built its first stainless steel sink. Then—as now—they relied on Ryerson for the finest quality material and service.

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These same plus values on stainless steel can help you solve problems of selection and application . . . assure you the utmost in day-in, day-out dependable service. Get all the details from your Ryerson Representative.

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JOSEPH T. RYERSON & SON, INC. MEMBER OF THE STEEL FAMILY

METALOGICS PLUS VALUES IN STEEL • ALUMINUM • PLASTICS • MACHINERY

For More Facts Write No. 159 on Information Card—Last Page

# Straws in the Trade Wind

► **LOWER TOWEL COSTS**—A large trucking company cut its maintenance shop towel costs more than 66% by switching to disposable paper towels. Not only did the trucker eliminate the cost of laundering cloth towels, but it also saved by eliminating incidental expenses of sorting, counting, and distribution.

► **BOOST IN CORPORATE PROFITS**—Pretax corporate profits increased to a seasonally adjusted rate of $45.5 billion in the second quarter of 1961, according to the Commerce Department. This was a whopping $5.5 billion hike from the recession low in the first quarter. Roughly two-thirds of the profit rise came in manufacturing. The department says that third quarter profits were even higher.

► **MORE HOUSING STARTS** — Housing starts for this year have been estimated at 1.3 million by National Gypsum Company, a major supplier to the building industry. In 1960, housing starts totaled 1.252 million.

► **DIE CASTING PRODUCTION OFF**—Production of custom die castings this year will be slightly below 1960 levels, says the American Die Casting Institute. However, the institute says that 1962 output will set a new record.

### For the P.A.'s Hot File . . .

Plastics, the fastest growing material of the packaging industry, will probably continue to outpace other packaging materials. Up to now, polyethylene has been the most widely used of the plastics, but the outlook is for rapid increases in consumption of other types of polyolefins. For instance, semi-rigid polyethylene bottles are expected to capture virtually the entire liquid detergent market this year.

► **CAPITAL SPENDING TO RISE**—Capital spending by business concerns is expected to rise to an annual rate of $35.9 billion in the last quarter of 1961, say the Commerce Department and the Securities and Exchange Commission. This would be the highest rate of capital expenditures since the third quarter of 1960. Spending was at a rate of $34.8 billion in the third quarter of 1961 and at a rate of $33.5 billion in the second quarter.

► **OUTLOOK GOOD FOR FOUNDRIES**—A rise in shipments during the last half of 1961 is anticipated by 73% of the steel foundries polled by the Steel Founders' Society of America. The foundries expect sales increases averaging 18% over the first half. Most of the foundries report that customer inventories are very low—with many P.A.'s ordering in small quantities to meet current manufacturing schedules.

► **CAN MACHINE FOR ALL MATERIALS**—A new all-purpose can-making machine is adaptable to all types of material, including thin tinplate, tinless tinplate, and aluminum. The American Can Company machine turns out cans at the rate of 2000 per minute—more than three times as fast as conventional can-making machines. Can bodies are made out of a continuous strip of material by forming a tube and then cutting the can bodies off a whirling wheel arrangement at the end of the line.

► **NO CHANGE IN SALES** — A continued high level of sales in the current quarter, without much change from the third quarter, is the expectation of 1500 businessmen polled in a recent survey. The poll also indicates that businessmen do not expect to add to their present inventory levels. And over 80% of the companies do not plan any increase in payrolls during the quarter.

► **IDENTICAL BIDDING REPORT**—Out of more than 4.8 million federal purchases made through competitive bidding in 1956 through 1960, only 711 instances of identical bidding were reported to the Justice Department. However, the government did receive identical bids in each of the 12 major categories of goods it buys.

(Turn Page)

# Western BRASS

(Before)

# Olin BRASS

(After)

The letterheads have been printed, signs made... and here we are wearing a new name. But in the mills things go on pretty much as they always have. We've put in some new machines and broadened our line... but essentially it's the people at Western (oops!) *Olin* Brass that really make the product. They *care*. That's the "Tailor-Made" approach.

If you're an old customer you know what we mean. If you're not – ask one of our users. Chances are he'll tell you the uniform quality and individual engineering of his metal has managed to save him money in inspection, fewer rejects and less lost time.

Olin Brass can do the same thing for you.

We're the same folks.

METALS DIVISION Olin
400 Park Ave., New York 22, New York.

(Brass sales headquarters at East Alton, Illinois)

For More Facts Write No. 160 on Information Card—Last Page

# Pulse of Business

## Straws in the Trade Wind

► **BUSINESS FAILURES RISE**—Business failures climbed 26% in August to 1604—close to the postwar peak set in March. Dollar liabilities surged 48% to $102.7 million, a volume exceeded only twice in recent years, reports Dun & Bradstreet. During the same month, however, the number of new business incorporations edged up 0.8% to 15,873 (seasonally adjusted).

► **BITUMINOUS COAL OUTLOOK BETTER**—Bituminous coal production in the second half of 1961 should rebound over the similar period of 1960 by a fair margin, says Standard & Poor's. Reasons: expanding steel mill needs, increased consumption by utilities and industry. However, because of the sluggish start in the first half, '61 production may only approach 400 million tons—compared with 413 million tons last year.

► **GREATER WORKING CAPITAL**—Working capital of American corporations rose $3.6 billion to $138 billion in the second quarter, says the Securities and Exchange Commission. Current assets increased almost $5 billion, while current liabilities advanced only $1 billion.

► **GNP AT PEAK**—Gross national product hit a record $526 billion (seasonally adjusted annual rate) in the third quarter, says Commerce Secretary Hodges. This is well above the previous high of $516 billion set in the second quarter. Secretary Hodges expects GNP to reach $540 billion in the fourth quarter—even if there is no marked pickup in consumer buying.

► **P.A.'S SEE BETTER BUSINESS**—Business survey committees of two purchasing agents associations report better economic conditions in their areas. The Chicago association says "For the first time in two years, more companies report higher than lower profits." And the Los Angeles group notes that "Rates of improvement for production and new orders climbed to their highest points of the last three months."

► **DURABLE SALES, ORDERS UP**—Durable goods manufacturers had higher sales and new orders in August. All major industries except motor vehicles—which was in the midst of its annual model changeover—contributed to the rise. Seasonally adjusted sales were up $100 million to $14.9 billion and new orders advanced $300 million to $15.3 billion.

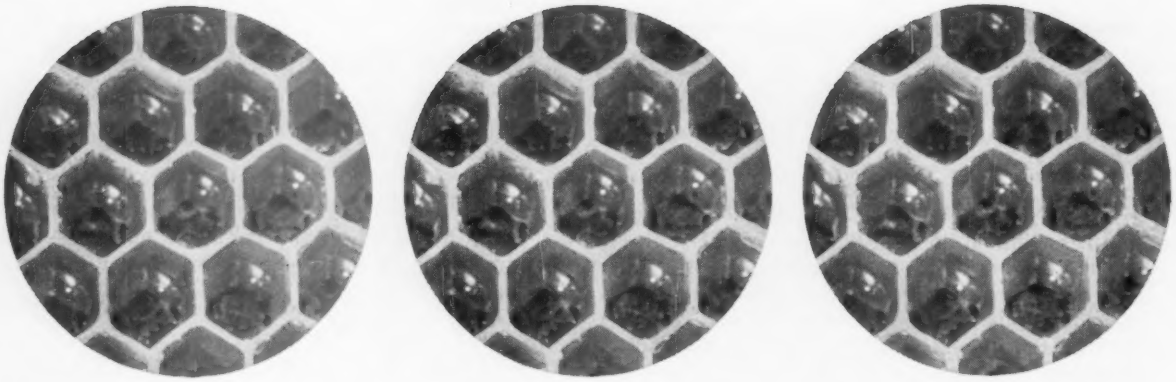
► **MORE FREIGHT LOADINGS** — Freight loadings during the fourth quarter of 1961 will increase 3.3%, according to estimates made by the 13 regional shippers advisory boards to the Association of American Railroads. Carloadings of the 32 principal commodity groups are estimated at 5,903,115—compared with 5,715,991 in the last quarter of 1960.



George Cline Smith

**QUOTE! QUOTE!**

"Despite prospects for booming business, the construction industry and the building material producers face a long-range outlook of intensified competition," says George Cline Smith, partner of MacKay-Shields Associates. "The construction market during the remainder of the sixties," notes Smith, "promises to be the largest, in dollar volume, ever enjoyed by any industry anywhere. In terms of today's dollars, new construction plus maintenance and repair work will absorb well over a trillion dollars of goods and services during the decade . . . The problem for the individual firm lies in doing the best possible job of securing a profit in the intensive competition which already exists." He declared that "The total construction market will grow, in physical terms, and even more in dollar terms, throughout the 1960's. It will be a profitable market for many firms—for those who do the smartest and best job."



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## HOW "PD" IS ACHIEVED

To produce grinding wheels of unsurpassed uniformity, Cincinnati developed its unique (PD) manufacturing process, involving 36 quality controls. These rigid controls govern every step of wheel production. They achieve, for example, tolerance for wheel inside diameters which are the "tightest" in the industry. So your CINCINNATI WHEELS have better balance, require less dressing and last longer.

## HOW "PD" PAYS OFF FOR YOU

The uniformity and longer wheel life you get permits you to plan production schedules with the assurance that each reorder wheel will act and grind exactly like the original. This is the promise—and *performance*—of Positive Duplication.

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You can solve your grinding problems with the help of specialists trained by the Cincinnati Milling Machine Co. Their wide experience in job set-ups and grinding operations is at your service. Just call your CINCINNATI GRINDING WHEELS Distributor or contact Cincinnati Milling Products Division, Cincinnati 9, Ohio.

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GRINDING WHEELS

*Trade Mark Reg. U.S. Pat. Off.

A PRODUCTION-PROVED PRODUCT OF THE CINCINNATI MILLING MACHINE CO.

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- **Custom Smelters Reduce Scrap Copper Price**
- **Int'l. Study Group To Consider Zinc Cutbacks**

COPPER CUSTOM smelters made a few reductions recently in the price that they will pay P.A.'s for scrap. At this writing, the price for No. 2 copper wire scrap is 25 cents-a-pound —off 1¾ cents since September 7.

Demand for primary copper from purchasing agents has been generally good this month. Brass mill suppliers also report satisfactory sales.

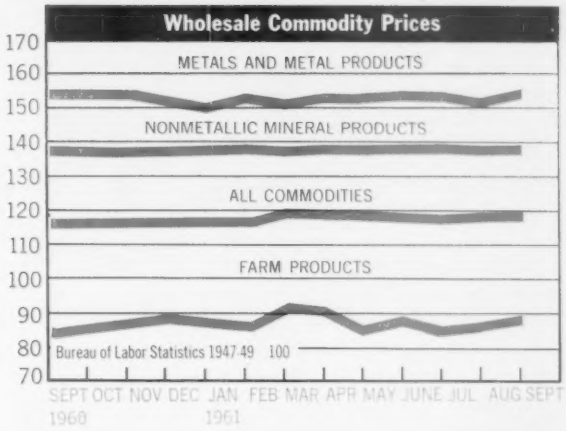
World copper deliveries to fabricators rose to 290,626 tons from 283,548 tons in the previous month, according to the latest release from the Copper Institute. Primary production, however, fell to 256,008 tons from 292,547 tons. Refined stocks totaled 424,912 tons—426 tons less than the month earlier.

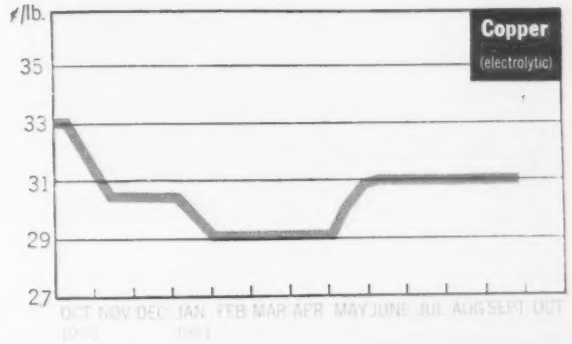
**Aluminum:** For an analysis of the fast-breaking developments in the aluminum market, see the Special Commodity Report on p. 27.

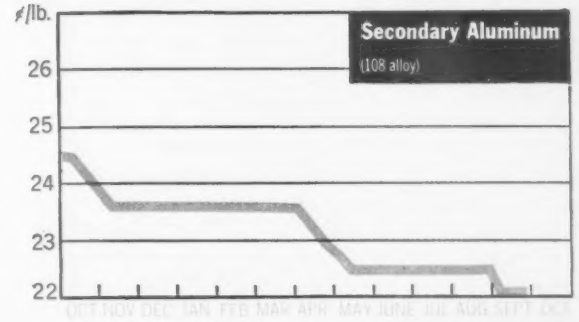
**Zinc:** The steel industry continues to be the major customer for prime western zinc. However, there has been a slight improvement in demand for special high grade zinc—the type used by the automobile companies.

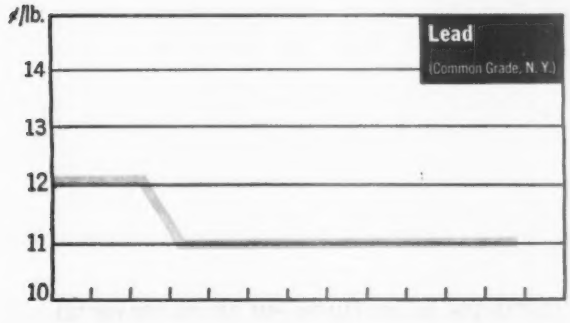
The International Lead-Zinc Study Group will meet in Geneva on Oct. 18 in an attempt to halt sagging world zinc prices. Among the suggestions that have been made is for foreign nations to cut back on production.

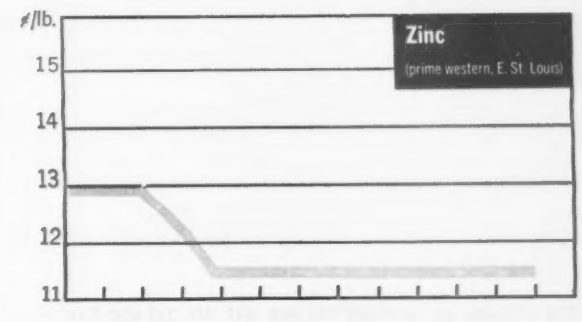
According to the latest American Zinc Institute figures, inventories at U.S. smelters fell 18,514 tons to 188,099 tons—the lowest level

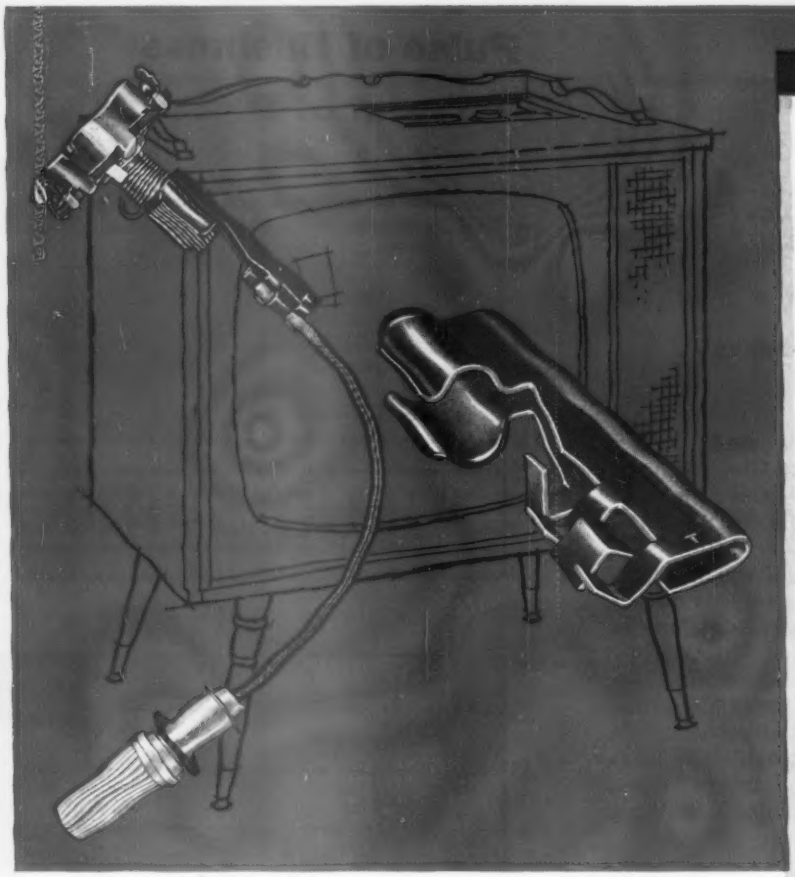




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## SPEED CLIP® gives Sylvania easier, more reliable, more flexible assembly

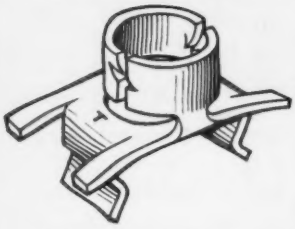
This new Tinnerman-engineered SPEED CLIP fastener provides a faster, more flexible connection between control "pots" and knobs on a TV manufactured by Sylvania Electric Products, Inc. The fastener can be applied wherever similar components are mounted and space limitations pose an assembly problem.

Several advantages are offered over methods previously used. Assembly is easier and faster . . . mating parts are simply pressed together and secured under live spring tension. Built-in ratcheting action permits overload slippage to protect the control from over-adjustment. Designed for use with a flexible cable, mounting of the control is completely independent of the knob location. They can be perpendicular to each other anywhere within 360°. Finally, this fastener is stamped with the Tinnerman T-mark, as are all SPEED NUT® brand fasteners. This is your assurance that Tinnerman quality and total reliability are going into your products wherever these fasteners are specified.

For samples, literature, prices, call your Tinnerman sales office . . . listed in the "Yellow Pages" under "Fasteners." Or write to: *Tinnerman Products, Inc., Department 12, P. O. Box 6688, Cleveland 1, Ohio.*

**TINNERMAN**
*Speed Nuts®*
Look for the Tinnerman "T"

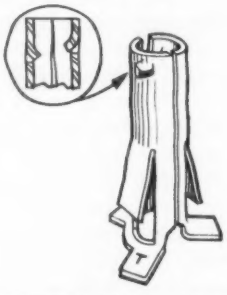
### T-MARK ENGINEERED SPECIALS



**TRANSISTOR CLIP** saves weight and space, snaps quickly into panel . . . no screws, rivets. Designed for coil form retention, this SPEED CLIP fastener proved ideal for fastening transistors. Tubular retaining collar has excellent heat sink properties, openings at sides and bottom allow air circulation.



**FRONT MOUNTING SPEED CLIP FASTENER** cuts front panel assembly costs on popular washer-dryer. Unique self-retaining SPEED CLIP fastener permits simplified front mounting for easier, faster, lower cost assembly of front panel. No welding, staking, screw driving . . . ends scrap hazard. Four fasteners engage panel mounting flange as it slips in place over curved spring fingers. Assures firm vibration resistant assembly, yet easy removal for servicing.

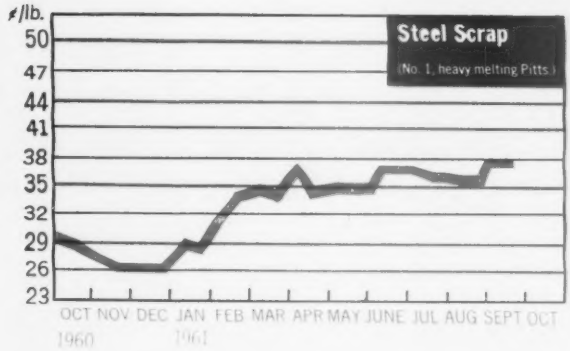


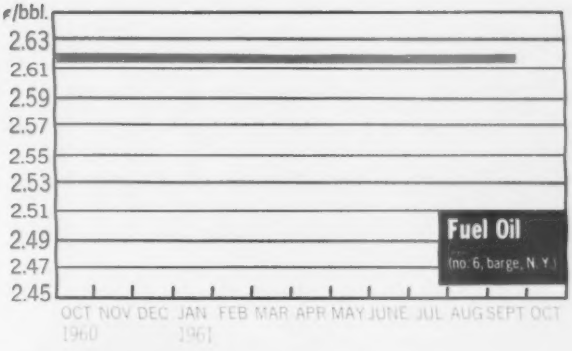
**BOWDEN CABLE CLIP** is one of many Tinnerman designs to fasten armored cable. Designed for car instrument panels, it's the perfect answer to through-panel cable fastening problems. No welding, staking, clinching, no special mounting brackets or clamps. Live spring tension prohibits vibration . . . prevents loosening.

CANADA: Dominion Fasteners Ltd., Hamilton, Ontario. GREAT BRITAIN: Simmonds Aerocessories Ltd., Treforest, Wales. FRANCE: Simmonds S.A., 3 rue Salomon de Rothschild, Suresnes (Seine). GERMANY: Mecano Simmonds GMBH, Heidelberg.

For More Facts Write No. 162 on Information Card—Last Page

## More on Price Trends

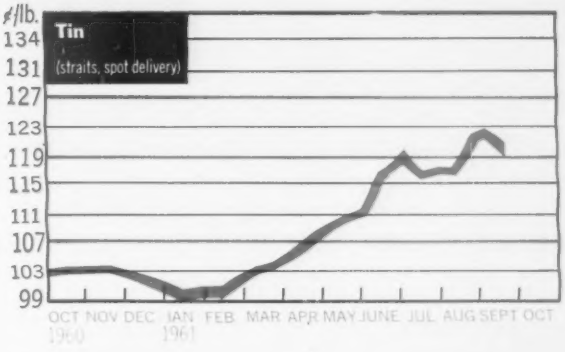



since November 1960. Shipments jumped 13,300 tons to 84,271 tons and smelter production of refined zinc dropped 3998 tons to 65,757 tons.

**Tin:** Improved consumer demand has raised prices slightly in New York, London, and Singapore. However, a general air of uncertainty still hangs over the tin market.

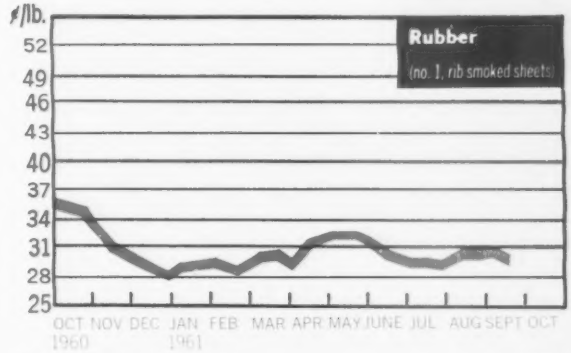
The International Tin Council is scheduled to meet today (Oct. 9). World tin prices and the possibility of fixing a new ceiling and floor for the International Tin Agreement are expected to come up for review.




**Lead:** Demand for lead continues to be moderate. Sales are still divided between the flat and the average price basis.

Only a few scattered orders are being placed for carload quantities bought for immediate delivery. In London, prices softened—presumably because of the unsettled conditions in copper and tin.

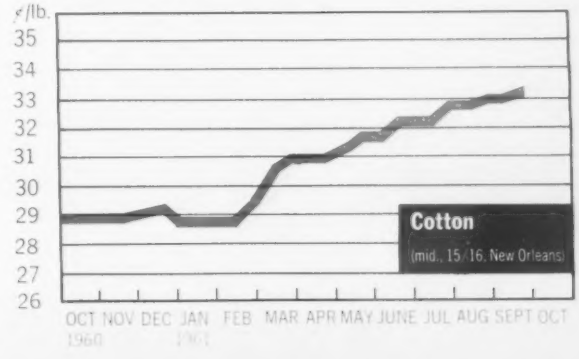
At this writing, President Kennedy has taken no action on the bill passed by Congress providing a $16.5 million subsidy for small lead-zinc producers.




**Wholesale Prices:** The Labor Department's Wholesale Price Index rose 0.3% in August to 119 (1947-49=100). Sharp increases in prices of farm products and processed foods were the major reason for the advance. Average industrial prices held steady.

Among industrial commodities there were price hikes for metals and metal products, textiles, and crude rubber. Chemical, gasoline, and lumber prices dropped.

Prices also declined for a number of items of electrical machinery and equipment—such as small electric motors, transformers, and transformer type arc welders.



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You can reach the Revere Technical Advisory Service simply by calling or writing the Revere Office nearest you. If you are interested in a cooperative program of this kind and in discussing your metals procedures fully—in confidence—call Revere today. You will find that you have taken the first step toward profit-protecting economies. No obligation, of course.

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125-pound All Iron Gate Valve. Outside screw rising stem and yoke. Flanged ends, 2" through 30". Screwed ends, 2" through 8". Iron body bronze mounted valves also available.

175-pound W.O.G. Semi-Steel flanged end Lubricated Plug Valve. Wrench operated. Sizes 1" through 4". Available also with screwed ends. Catalog of complete line on request.

125-pound Iron Body Bronze Mounted Swing Check Valve. Bolted flanged cap. Can be used in either horizontal or vertical position. Sizes, flanged, 2" through 18"; screwed, 2" through 4". Can also be furnished in all iron.

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**POWELL DEPENDABLE VALVES**

THE WM. POWELL COMPANY CINCINNATI 22, OHIO

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# Kennedy Transportation Policy Will Aid Railroads

THE KENNEDY Administration is shaping up its policy toward the nation's transportation problems. At this very moment, aides are establishing the groundwork for new transportation legislation.

Just prior to President Kennedy's taking office, seven reports on transportation were completed by the Congress and the executive branch of the government, totaling 2,000 pages of printed material. During the past decade and a half, several hundred thousand other pages have been prepared that say largely the same thing.

How does the Kennedy policy differ from previous ones? There is a greater degree of urgency about the transportation problem than in the past. There is the plight of the New Haven, many railroads in the East are losing money, many major cities are pounding on Washington's door for aid in building rapid transit, and railroads are applying for permission to merge with other lines to achieve more economical operation.



ICC Chairman Everett Hutchinson advocates federal subsidies for passenger-carrying railroads, along with matching state and local funds.

### Establish Single Agency

The conclusions reached in previous studies appear just as valid now as when they were first proposed. Two of the major ones were that the federal government needs to develop a national transport policy and that it should establish a single transportation agency for transport development.

It might be expected that the Kennedy approach would be to embellish the previously prepared programs in new language and dangle them among the objectives of the New Frontier. What is more likely, however, is that his programs will be much more practical. That's because the various segments of the transportation industry are still too divided in their interests to support a single government transportation agency.

The airline industry prefers its own special agency, as does the merchant shipping industry. Roads come under the Bureau of Public Roads, which becomes a powerful special pleader for more and better highways.

The suggestions in the past have also included a national plan for railroad consolidation and total abandonment of passenger movement by rail except for urban transport.

Right now, the Administration seems to be developing a plan for equalizing the position of railroads with other forms of transportation.

The Department of Commerce has been instructed to prepare recommendations on national transportation policy and submit them by November 1.

In the course of preparing these recommendations, the Commerce Department called on spokesmen for the various segments of transportation to make their positions clear. They were also asked to make suggestions as to what the government can properly do.

### Industry Offers Suggestions

The suggestions offered were varied. From the Association of American Railroads came a series of "essential and urgent" legislative proposals. The most significant one was the recommendation that the agricultural commodity exemption from ICC economic regulation be repealed. The rails also want similar action taken to eliminate the water carriers' privilege of carrying up to three bulk commodities in the same tow without economic regulation.

Truckers—speaking through the American Trucking Association—offered 14 recommendations, with specific emphasis on illegal common carriage.

The Air Transport Association suggested that the 10% transportation tax be repealed.

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## ...the hammer that revolutionized masonry drilling

Your Skil distributor is ready to give you a whopping big trade-in allowance on a new Skil Roto-Hammer—*the fastest, easiest, lowest cost way to drill masonry holes!* You'll actually receive $60 or more worth of Skil Hammer accessories as your trade-in for any old electric hammer, regardless of make, model or condition.

Two Roto-Hammer models are available —new, improved Model 726 (drills masonry holes from 11/64″ to 1½″ diameter); Model 736 (drills masonry holes from ½″ to 3½″ dia.).

See your Skil distributor NOW for complete information. *But hurry! This sensational trade-in offer is for a limited time only!* Look under "Tools—Electric" in the Yellow Pages. Or write: Skil Corporation, Dept. 125J, 5033 Elston Avenue, Chicago 30, Illinois.

SKIL POWER TOOLS

### Only Skil Roto-Hammers have 3-way action




...and only Skil Roto-Hammers use 4 types of percussion-rotary bits...over 150 accessories in all for unequalled versatility!

For More Facts Write No. 165 on Information Card—Last Page

The Lake Carriers Association recommended six steps to keep our Great Lakes bulk fleet up to a high level of operating efficiency.

Presumably all these suggestions will be sorted out, weighed, and taken into consideration in preparation of the new Kennedy transportation policy.

A more pragmatic approach comes from the Government officials who will have to develop the program and sell it to Congress. Basically it amounts to this:

The truckers have already been given a helping hand with the huge Federal-aid road and highway program. The government has installed a modern and highly efficient airways system. But the railroads are now in trouble and the government will have to do something to help them.

Passenger traffic just isn't profitable. Long haul passenger traffic may be on the way out completely. Short haul passengers may well be incorporated into an urban transportation setup in the near future.

### Will Govt. Offer Subsidy?

For the present, the thinking here is that commuter traffic might justifiably be supported with a federal subsidy. Chairman Everett Hutchinson, of the Interstate Commerce Commission, testifying before a Congressional committee, suggested that federal subsidies should be made available to passenger-carrying railroads along with matching funds by state and local governments.

According to the latest figures available from the ICC, railroads account for 45% of all intercity ton-miles handled by carriers. Pipelines represent 14%; motor carriers, 7%; inland waterways, 2%; and airways, less than 1%. The remainder is moved by private carriers.

While there is great opposition in Congress to subsidies, the legislators have approved various subsidy payments to other industries—on the premise that there is no other way.

In the movement of freight, the Kennedy program is likely to take several approaches:

(1) Encourage merger and consolidation of railroads to promote progress of the industry. Although mergers represent a trend toward monopoly in expanding industries, they may be needed to adjust to the reduction in operations in a contracting industry such as railroading.

(2) Give tax relief through accelerated amortization of equipment to encourage modernization, repeal of the passenger transportation tax, and the encouragement of similar local and state action.

(3) Attempt to limit the exemption of agricultural commodities from ICC regulation. In this manner, higher rates would apply to such commodities and the common carriers would get increased revenue.

(4) Clamp down on the "gray" areas of common carriage where private carriers are taking freight away from common carriers. The objective is not to stop shippers from carrying their own goods in their own trucks. Rather it is to clamp down on common carriage by private vehicles. Administration advisers propose that common carriers be redefined under the ICC act so that private carriers can be used only for private purposes.

The outcome of the Kennedy legislative proposals on transportation is speculative at this time. For instance, the proposal to include agricultural products under economic regulation will come up against strong opposition from legislators from the farm states.

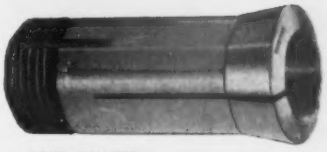
However, the nation's economic stake in transportation is great. The transportation complex in the United States represents an industry with a volume of around $100 billion annually. In addition, the price of transportation is an important direct and indirect factor in virtually every purchase.—A.N. Wecksler


When You Think

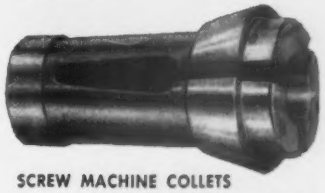
Collets

Think

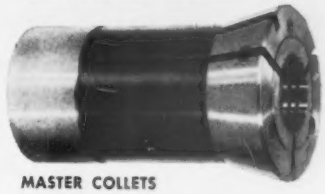
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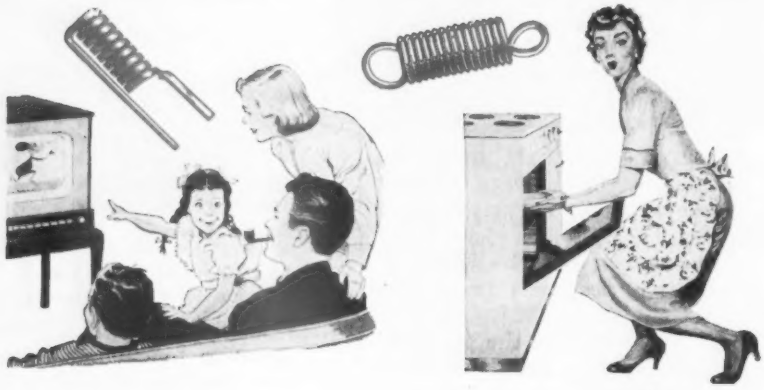
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Ohio Division, Dayton, Ohio
B-G-R Division, Plymouth and Ann Arbor, Mich.
Gibson Division, Mattoon, Ill.
Milwaukee Division, Milwaukee, Wis.
Seaboard Pacific Division, Gardena, Calif.
Wallace Barnes Co., Ltd., Hamilton, Ont. and Montreal, Que.

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## Special Commodity Report

# Intense Competition Causes Aluminum Price Drop

ALUMINUM prices today are the lowest in three years. This is not the way the industry planned it. A few weeks ago, odds seemed good that producers would put through modest increases in the fourth quarter.

The price of aluminum ingot is now 24 cents a pound, the lowest it has been since 1956. Cuts ranging from ½ cent-a-pound to 1½ cents-a-pound have been made in most mill products. Yet sales are on the increase. Why this seeming paradox?

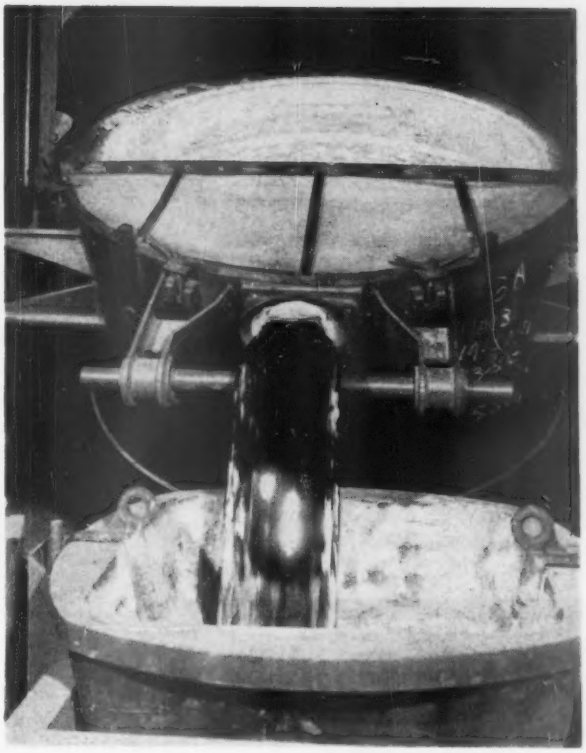
The reason is heavy competition for the available sales dollar. It's no secret that the aluminum industry strongly feels it needs higher prices for its products. In recent years, price advances haven't kept pace with higher labor and other costs. Return on investment is among the lowest of any metals industry.

In August, it appeared that the industry might be starting a major revision of its prices when the quotations on some products were raised. At the same time producers lowered other quotations to better reflect the actual prices of certain products. An improvement in fourth quarter sales would probably have brought higher prices.

Suddenly the picture changed. Here's what happened:

The Canadian ingot price is 23.25 cents-a-pound compared with the U. S. price of 26 cents. But because of the 1.25 cents-a-pound import duty and freight charges, few users have bought in Canada.

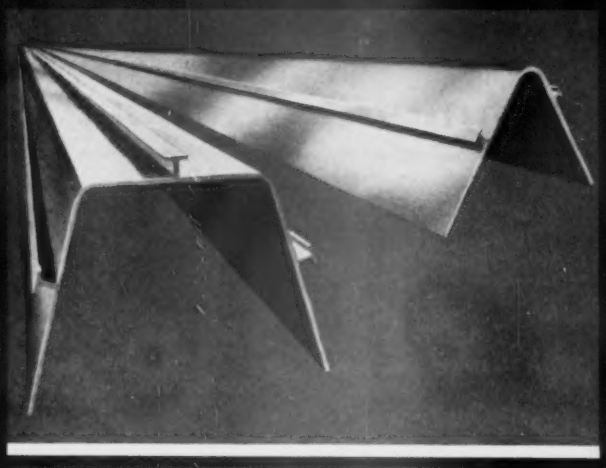
Then Canada devalued its dollar. It now takes only 22.55 cents-a-pound American money to equal the Canadian ingot quotation of 23.25 cents. Aluminum Ltd., the giant Canadian producer, which sells aluminum in this country at the U.S. price, last month informed its customers it would sell them ingot — delivered to the U.S.-Canadian border—for 22.55 cents-a-pound (in U.S. dollars). Even with freight and import tax, this meant many users could buy their ingot at 1.5 to 2 cents-a-pound under the U.S. quoted price.



Reaction from U.S. producers was immediate. They cut the ingot price 2 cents to 24 cents-a-pound.

Aluminum Co. of America's chairman, Frank L. Magee, summed up the U.S. industry's attitude this way: "This price reduction is forced upon us, not only to meet competitive foreign prices, both Canadian and European, but to save the U.S. aluminum industry from the dislocation and hardship that would follow from acceding to the Canadian pricing policy of a base price at the Canadian border, plus extras for U.S. delivery which would be different for every customer. The aluminum industry has been built on the single delivered price concept and we do not propose to allow others to sacrifice our customers who have located plants in reliance upon it.

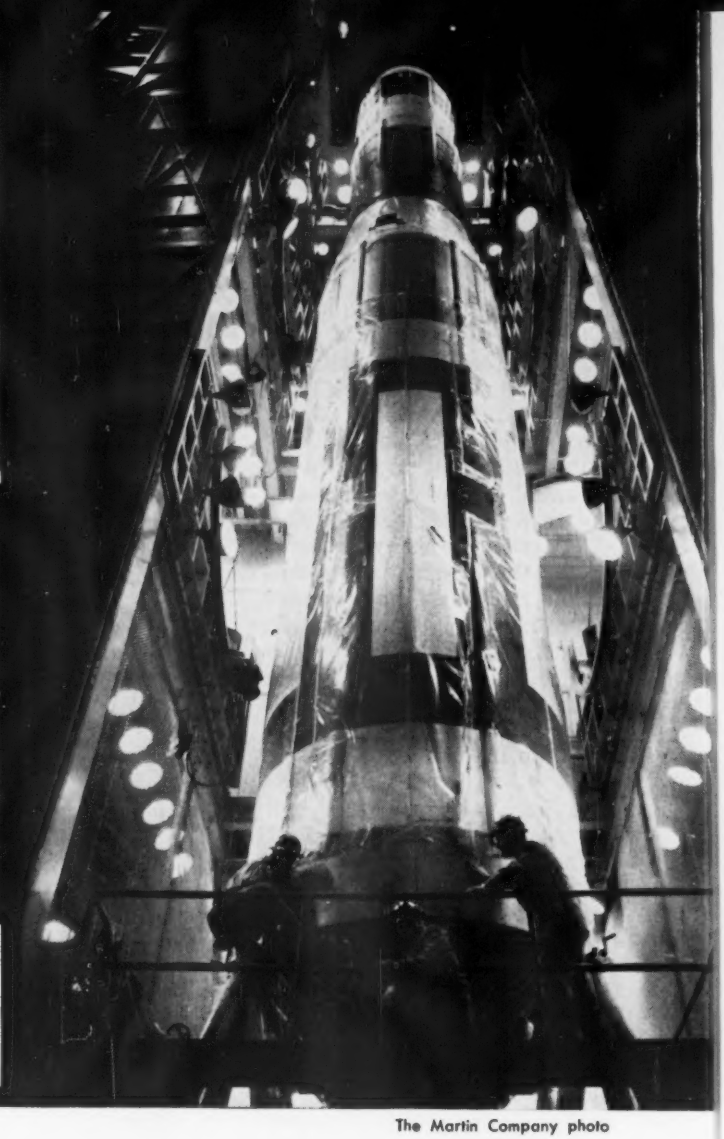
"However, we make this price reduction with great reluctance in view of the fact that the 26-cent price, which has been in effect until Sept. 22, yielded the company only a modest return on existing volume, and is believed to be the lowest price at which ingot should be sold in the U.S. if the domestic companies are to continue to be able to reinvest large sums of money in improving the technology and productivity of the industry, both for defense and normal





34″

These giant panels are extruded in U-shape with three stiffening ribs, or V-shape with two (top photo) . . . then flattened to close tolerances (lower photo).



The Martin Company photo

# DOW EXTRUDES GIANT 34″-WIDE ALUMINUM PANELS FOR TITAN

At Dow's Madison, Illinois, plant, a huge 13,200-ton press extrudes big aluminum panels with integral stiffeners for the Air Force Titan missile. The panels are so wide—34 inches—that they must be extruded with a "U" or "V" cross-section, then flattened and straightened. Panels with three stiffeners get the U-shape; with two stiffeners, the V-shape.

These aluminum 2014 alloy panels are flattened in Dow's contour-correction equipment to close tolerances, then straightened in a 1,000-ton stretcher.

The Dow Metal Products Company's years of large-extrusion experience include production of big parts for aircraft and ordnance equipment, as well as for missiles. Dow's Madison plant is in high-volume production of many different extruded shapes and sizes, in a wide range of aluminum alloys . . . including extrusions with circumscribing circle sizes up to 30 inches, and as long as 80 feet. For information, write The Dow Metal Products Company, Midland, Michigan, Merchandising Dept. 1102EE10-9.

DOW

**THE DOW METAL PRODUCTS COMPANY**

*Division of The Dow Chemical Company*

For More Facts Write No. 168 on Information Card—Last Page

growth. These foreign sources are not faced with that responsibility and we have brought this matter to the attention of appropriate government officials from time to time."

The outlook for volume is encouraging to producers. Suppliers foresee a sharp upswing in demand in the fourth quarter that will pull sales above last year's level. They also note the possibility of record shipments in 1962. P.A.'s can look forward to good metal availability, quick deliveries and reasonably stable prices, at lower levels than they have been paying.

Because of an extremely poor first quarter, aluminum shipments to date are slightly behind those of last year. Business has been on the upswing since early in the second quarter and should rise even higher over the next few months.

### Domestic Sales Booming

The industry believes fourth quarter shipments will be strong enough to lift 1961 sales 3% to 4% over those of 1960. A 4% gain for the year would mean shipments of 2,450,000 tons, not far behind the record 2,480,000 tons set in 1959.

Domestic sales have actually been much better than these figures indicate. That's because last year foreign demand was heavier. In the first seven months of 1960, domestic producers shipped 180,359 tons of crude metal and alloys to other nations—mainly to the booming industries of Western Europe and Japan. During the same period this year, exports of crude metal and alloys were down to 83,807 tons.

With the boom in Western Europe slowing down, exports may be off even more next year. But 1962 could be the highest year in history for U.S. aluminum shipments. "Given a continuation of the business uptrend and the rebuilding of inventories that always accompanies an uptrend, tentative estimates place shipments in 1962 at 2,900,000 tons," says Walter L. Rice, vice president of Reynolds Metals Co.

Plenty of aluminum will be available even if the optimistic sales forecasts come true. U.S. primary producers have a capacity of 2,466,000 tons a year. Currently the industry is operating at an annual rate of slightly over 2 million tons.

### There's Plenty of Capacity

Production for the year will probably total around 1.9 million tons. So primary capacity is over 500,000 tons greater than expected 1961 production. In addition, the primary producers have around 172,000 tons of partially completed capacity that could be brought in on short notice.

To the north, the two Canadian producers, Aluminium Ltd. and Canadian-British Aluminium, would like nothing more than to have an opportunity to sell more metal to the U.S. Together the two companies have a capacity of 878,000 tons of aluminum a year. In addition, Aluminium Ltd. has 90,000 tons of partially completed capacity.

A third source of metal to the U.S. user is the secondary aluminum industry, which has a capacity of over 500,000 tons yearly.

These three aluminum sources — primary, secondary and imports—can provide quantities of metal far in excess of present needs.

### Aluminum Production Lower This Year

(in tons)

| | |
|---|---|
| 1957 | 1,647,709 tons |
| 1958 | 1,565,557 |
| 1959 | 1,954,112 |
| 1960 | 2,014,498 |
| 1961 | 1,900,000* |

*Estimated

Source: The Aluminum Association

P.A.'s can also expect more companies to enter the aluminum field. At least two U.S. firms have announced plans to join the ranks of primary producers in the near future.

The biggest guarantee consumers have that supply will remain adequate is the strong desire of vendors to keep availability ahead of demand. Producers know that in today's competitive materials race they must meet supply commitments. The industry has poured too many dollars into research and development to risk markets through inadequate supply.

No events are on the horizon that could disrupt American production. The industry's current labor contract runs until August of next year. International tensions have less effect on aluminum than on many other nonferrous metals.

### Future Looks Bright

The industry's future looks bright. All indications are that aluminum usage will grow fast in such major markets as transportation, construction, packaging. For example, one producer estimates aluminum consumption by railroads will reach 20,000 tons annually by 1965.

New markets continue to spring up. One market study indicates that heavy-duty, off-highway trucks could consume 25,000 tons of aluminum within a short time.

The new defense buildup will also create an additional market for thousands of tons of aluminum over the next year, says another major producer. Aluminum lost defense tonnage when the switch was made from manned bombers to missiles. Now that mobility is being emphasized, aluminum has found a new market for all types of vehicles and armament.

Prices should stabilize over the remainder of the year. Supply is ample; competition among suppliers for sales, intense. It's a buyers market and will be for the foreseeable future.

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**I-T-E CIRCUIT BREAKER COMPANY**
**BULLDOG ELECTRIC PRODUCTS DIVISION**

For More Facts Write No. 169 on Information Card—Last Page

# 1962 Shipments, Orders Will Top 1961

MANUFACTURERS' dollar volume of shipments and new orders will be higher next year than in 1961, according to those attending the National Industrial Conference Board's annual marketing conference. In an informal poll of the audience, 90% said that both their shipments and new orders would be up in 1962.

After the impromptu survey was completed by G. Clark Thompson, director of the NICB's division of business practices, officials from companies in eight industries presented forecasts of the sales outlook for 1962. All of them were optimistic about business conditions in their industries next year.

Robert C. Buddington, vice-president-sales of Inland Steel Company, said that 1962 would be a "reasonably good steel year" barring an extended strike. He noted that the odds of a strike taking place next year are less than they have been during previous steel labor negotiations.

The steel industry, he said, is now producing at a 105 million-ton annual rate. For the first half of 1962, he predicted an annual rate of 130 million tons—which would be close to the record pace of the first six months of 1959. He anticipated, however, that the last half rate of production would fall below the first half.

For the entire year, said Buddington, steel production would be 110 million to 115 million tons—10% to 15% above 1961. And if there is no strike, production could possibly match the 1959 record of 117 million tons.

### See 6.6 Million Car Sales

James O. Wright, vice president and group executive—car and truck group of Ford Motor Company and former director of purchasing for Ford, said that 1962 new car sales would range from 6.6 million to 7 million.

Plant and equipment expenditures will increase about 8% next year over 1961's figure of $35.5 billion, according to Robert M. Hatfield, vice president and general sales manager of Combustion Engineering, Inc. New orders, he declared, would rise approximately 10%.

"Total retail trade will increase in 1962 4% or more over 1961," said Myron S. Silbert, vice president of Federated Department Stores, Inc. "The No. 1 cause of our post war recessions is the retrenchment in inventories after excessive buildups."

Demand for petroleum next year will be 10,168,000 barrels a day, up 3.2% over consumption this year, reported Malcolm P. Murdock, vice president-sales of Ethyl Corporation. He observed that demand for gasoline, the oil industry's principal product, is expected to increase 2.8% in 1962 to 4,305,000 barrels a day.

Other forecasts for 1962 made at the conference: chemical sales will set a new record of over $30 billion; heavy construction contracts will top $25 billion; and the nonferrous metal industries will have a "good" year.

## When Labor Contracts Expire

### OCTOBER

| Industry | Company | Union |
|---|---|---|
| Chemicals | Union Carbide Corp. | OCAW |
| Electrical Machinery | Wagner Electric Corp. | IUE & IBEW |
| Furniture | Simmons Co. | UIU |
| Glass | Libbey-Owens-Ford Glass Co. | Glass & Ceramic Workers |
| Machinery | Brown & Sharpe Mfg. Co. | IAM |
| | Houdaille Industries, Inc. | UAW |
| | Oliver Corp. | UAW |
| | Pratt & Whitney Co., Inc. | UAW |
| Metal Fabricating | Scoville Mfg. Co. | IUE |
| Metals | Anaconda Wire & Cable Co. | IUE |
| Motor Vehicles | Budd Co. | UAW |
| Transportation Equip. | Mack Trucks, Inc. | UAW |

### NOVEMBER

| Industry | Company | Union |
|---|---|---|
| Aircraft | United Aircraft | IAM |
| Electrical Machinery | Maytag Co. | UAW |
| Farm Machinery | Allis-Chalmers Mfg. Co. | UAW |
| Metals | Kennecott Copper Co. | UAW |
| Motor Vehicles | Studebaker Packard Corp. | UAW |
| Paper | West Virginia Pulp & Paper Co. | UPP |
| Transportation Equip. | Lifkin Foundry & Machine Co. | FLU |
| | Clark Equipment Co. | UAW |
| Utilities | Consolidated Edison Co. | Utility Workers |

# Rubber Prices Steady Despite Russian Buying

RUBBER HAS surprised many observers by holding its price level steadily through most of this year. 1960 brought a rapid rise when it was feared that a shortage of supplies would develop. In the first half of that year, the price advanced sharply over the 40 cents-a-pound mark.

However, only a small proportion of last year's crop ever changed hands at this price. The result is that it now seems the average realized price of natural rubber this year will be little, if at all, below that of 1960.

Thus despite a boom that took prices well above the level at which synthetic material can compete quite strongly—and despite the introduction of new and highly versatile types of synthetics—the natural material has been holding its own.

Two factors are principally responsible for this. First it takes more than a temporary and narrow price margin in favor of synthetic to persuade many users to make the necessary adaptions to their plant and machinery so that they can switch from natural to synthetic. Manufacturers have to plan on the long-run assumption that if the switch is made, it will be permanent. Any constant changing of raw material in accord with shifting price trends is ruled out by the sheer cost involved.

While the market price of natural rubber was well above the point at which it paid to make the switch, for a while it did not stay high enough long enough to persuade many additional users to throw in their lot with synthetic. Even those who foresaw a shortage of natural rubber in 1960 did not predict that it would last very long, because of extensive replanting programs on many Far Eastern estates.

### Rise in Communist Buying

At the same time, a formidable support to the natural rubber market was being provided by Russian and Chinese purchases. Over the past year, it has become more difficult to keep check of Communist buying.

Previously, most of this was done mainly through London. While British re-export figures show 57,000 tons re-exported to the Soviet Union in the first half of this year—compared with 14,000 tons in the same period last year—this does not account for the entire rise in Russian consumption. Neither does it account

(*Please turn to page* 244)

## New Products From Europe

**Here are a few of the more recent developments in European industry:**

**Clay-Based Greases**—Lubricating greases, which have a clay base yet do not harden or change appreciably when used with water, have been announced by Shell International Research (Maatschappij N.V., 30 Carel van Bylandtlaan, The Hague, Netherlands). Prolonged storage is possible even in a humid atmosphere, since stabilization is achieved by adding organic water-proofing agents to a dehydrated mixture of clay, oil, and other compounds.

**Strong Adhesives**—Two adhesives for bonding fabrics, which also withstand the dry-cleaning process, have been developed by B. B. Chemical Co. (Leicester, England). The first is an aqueous adhesive which will dry within 60 minutes at room temperature. The second, a two-part, solvent-based synthetic rubber adhesive requiring dilution before spraying, produces a bond which can be safely handled after 10 minutes at 70 degrees C.

**Remote Control Nuclear Handlers**—A remote-controlled device which can be used to handle radioactive materials when placed in a sealed chamber has been developed by Commissariat a l' Energie Atomique (69 rue de Varenne, Paris, France). No holes are necessary for intercommunication since the control unit, which is outside the chamber, operates the arms or levers inside by a magnet. A variety of movements can be carried out by these levers.



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Your J & L distributor can provide the technical assistance and the consistent quality stainless steel you need, backed by the consulting services of J & L's architectural department.

Stainless Steel

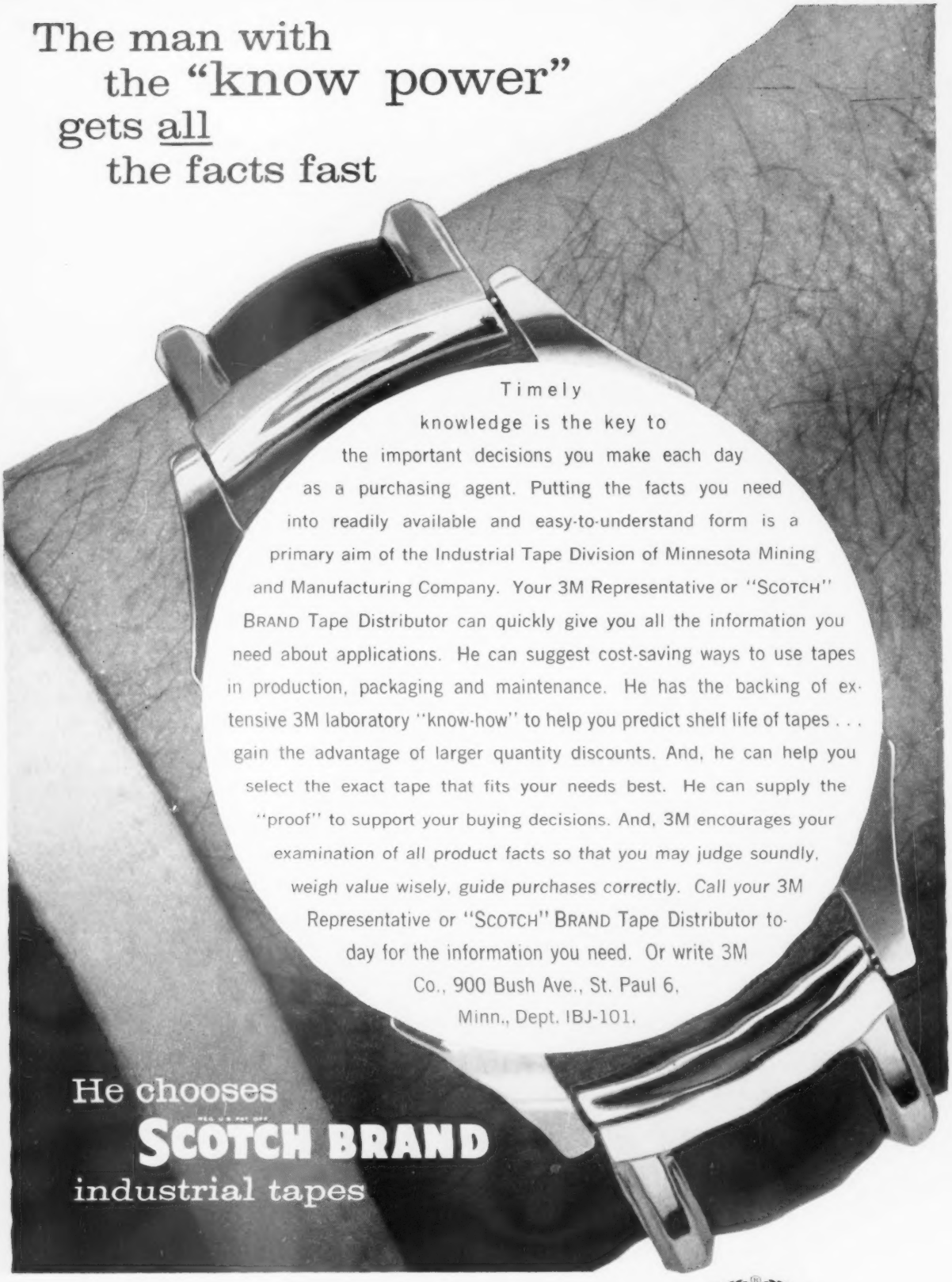
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Lou Krakowski, General Superintendent of the Harrison Sheet Steel Company, is a guy who makes no bones about what he wants. It's service! And, for twenty years, he has been getting what he considers the best . . . Cities Service.

Turning out, among many other things, 125 steel desks a day, he wants complete and dependable lubrication service. One of the many Cities Service products he uses to get this job done is Trojan H-2 grease. For general greasing on all equipment, multi-purpose Trojan H grease has a wide range of application. And, because of the variety of jobs Trojan H grease does, it reduces his necessary lubrication stocks.

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# CUT LIGHTING COSTS WITH WESTINGHOUSE LAMPS

The lamps shown above are just three of more than 8000 Westinghouse lamp types designed to give the most efficient lighting. To realize the lowest possible lighting costs, take advantage of the Westinghouse Lighting Cost Reduction Plan. It can help you save in one or more of these ways:

1. **Reduce your cost of lamp purchases**
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Your Westinghouse representative will be glad to show you how to apply the Lighting Cost Reduction Plan to your installation. For full information, contact your authorized Westinghouse Lamp Agent, or your Westinghouse Lamp Division Sales Office.

You can be sure . . . if it's **Westinghouse**

**Westinghouse Lamp Division,** Westinghouse Electric Corporation, Bloomfield, N.J.

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## IF YOUR ABRASIVE BELTS LOOK LIKE THESE ... your production costs are too High!

If your used abrasive belts are wearing out prematurely due to one of these conditions, you are incurring extra expense in manhours, abrasive replacement and perhaps, even production volume. The Carborundum Company has made a detailed study of causes and solutions to loading, glazing and stripping of abrasive belts. Practical application of these findings to your grinding or finishing problem can result in increases in abrasive belt life from 10 percent to 500 percent. Typical problem solutions often involve only a change in the abrasive product, a different contact wheel or a changed coolant. Call your Carborundum distributor or factory representative today for an on-the-job analysis. Coated Abrasives Division, Niagara Falls, New York. **CARBORUNDUM**



**LOADING:** Metal particles packed in between or completely covering the abrasive grains of the belt coating.



**GLAZING:** Face of belt smooth and glossy—indicates dulling of abrasive grain tips.



**STRIPPING:** Particles of the grain and bond pulled away exposing bare backing.





## COLD FINISHED STEEL BARS ASSURE

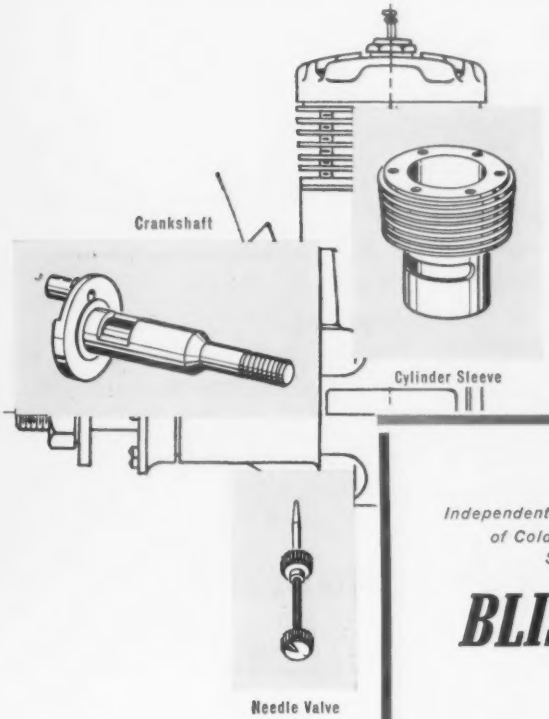
# GRUELING MODEL FLYOFFS AT 125 mph

Only steel provides the stamina demanded for critical components of tiny model airplane engines. These midget powerhouses, weighing less than 8 ounces, are capable of speeds up to 125 mph during grueling flyoffs. Only cold finished steel bars can withstand that kind of field service.

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Only cold finished steel bars are technically correct and economically sound for hundreds of thousands of applications. Check out your designs with Bliss & Laughlin. As the leading specialist in strength, finish, accuracy, straightness and machinability for 70 years, Bliss & Laughlin recommends the most suitable and economical bars from the industry's largest line of cold finished steels.

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*Bliss & Laughlin 1⅜" and ⅝" Ledloy A rounds are machined into complex cylinder sleeves and miniature needle valve bodies and knobs for the McCoy "35" Red HeadStunt Engine. Sleeves are black oxided for appearance and rust resistance. Tiny crankshafts are produced from 1⅛" C-1213 rounds, cyanide hardened for wear resistance and coated with molydisulphide for friction resistance.*

BL-618

*Leading Independent Producer of Cold Finished Steel Bars*




**BLISS & LAUGHLIN**

GENERAL OFFICES: Harvey, Ill. MILLS: Harvey, Ill., Detroit, Cleveland, Buffalo, Mansfield, Mass., Los Angeles, Seattle

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# Information For Your Catalog Files

## BALLASTS

A catalog of fluorescent lamp ballasts for sign, flashing, and weatherproof applications. Data includes electrical and physical characteristics, wiring diagrams, mounting instructions, and a cross-reference guide. Contains pertinent information on UL regulations.

**Universal Manufacturing Corporation**

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## CAP SCREWS

Form 2788 describes the advantages of hex head cap screws. Illustrates specific design features. Also covers inventory simplification.

**Cleveland Cap Screw Company**

Write No. 2 on Information Card—Last Page

## CEMENTS

A 12-page bulletin that reviews six corrosion-proof cements. Tables give detailed physical properties and estimating factors for most types of corrosion-proof masonry construction.

**Atlas Mineral Products Company**

Write No. 3 on Information Card—Last Page

## CONNECTORS

A six-page folder describing three separate lines of multiple connectors with specific data sheets for each. Data sheets give specifications on contact sizes and materials, wire crimp and insulation support, wire and insulation size ranges, receptacles, and housings.

**AMP Incorporated**

Write No. 4 on Information Card—Last Page

## CONVEYOR BELTS

A booklet on calculation, engineering, and selection of conveyor belts. Bulletin 175 gives statistical data and tables. The 24-page illustrated catalog also contains charts, graphs, and photographs. A section illustrates a typical conveyor problem.

**Hewitt-Robins**

Write No. 5 on Information Card—Last Page

## FORK TRUCKS

Bulletin SS-104 covers gasoline-powered fork lift trucks of 1000-pound capacity. The four-page illustrated catalog gives specifications on the Trucloader 1024. Includes charts on capacity, upright dimensions, and drawbar pull.

**Clark Equipment Company**

Write No. 6 on Information Card—Last Page

## GAGES

Buletin 322.11 describes a line of multi-point gages for indicating draft, pressure, differential, and temperature. The four-page publication discusses product features and illustrates them in cutaway photographs. Includes standard scale ranges, diagrams, and numerical dimensions.

**Republic Flow Meters Company**

Write No. 7 on Information Card—Last Page

## HOSE CONNECTORS

Technical Bulletin No. 26 describes stock flexible metal hose connectors. The four-page catalog lists features and applications. Includes charts showing specifications and working pressure correction factors.

**Atlantic Metal Hose Company, Inc.**

Write No. 8 on Information Card—Last Page

## INDEXING UNITS

Bulletin No. 26 covers model ST-A9AB indexing units. Contains information on the basic and the precision unit. Describes indexing cams and dial plates on machine bases, motors, and electric timers. Includes a load rating table and load calculation methods.

**Standard Tool & Manufacturing Company**

Write No. 9 on Information Card—Last Page

## MOTORS

Bulletin 1000CD describes a line of integral-hp, explosion-proof ac motors. Illustrates electrical and mechanical design features and lists principal dimensions for various NEMA frame sizes.

**Leland Ohio Electric Co.**

Write No. 10 on Information Card—Last Page

## PUMPS

Bulletin HV-161 presents high vacuum booster pumps. The illustrated catalog describes features and includes diagrams of operation. Forty-five models are tabulated with displacements from 310 cfm. to 32,870 cfm.

**Roots-Connersville Blower**

Write No. 11 on Information Card—Last Page

## RELAYS

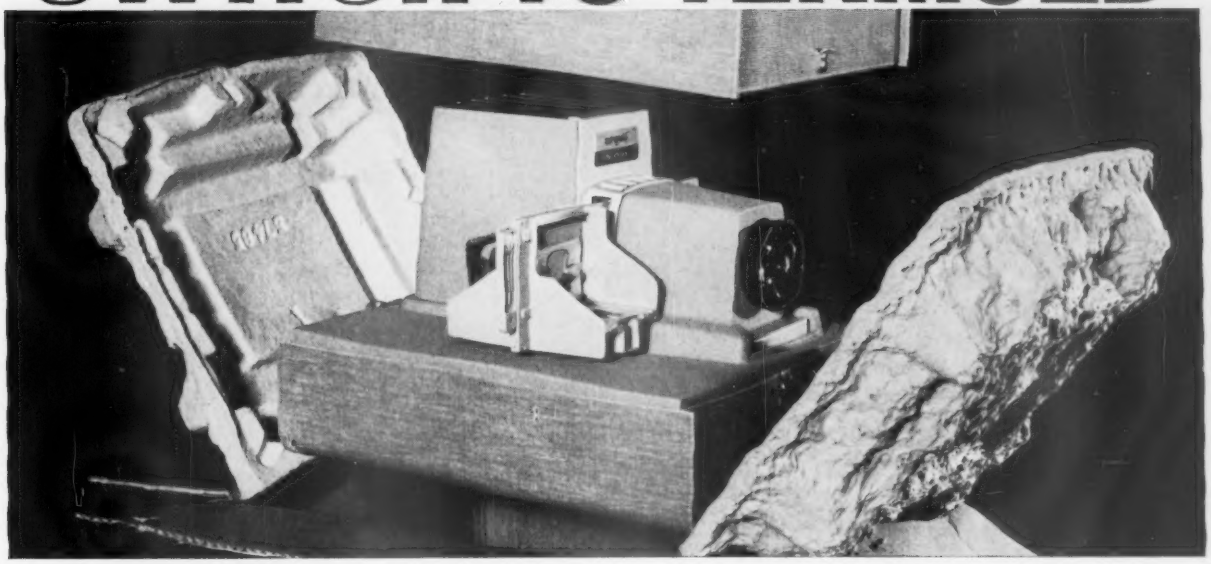
Bulletin GEA-7331 lists features and advantages of plug-in current relays designed for use with glass terminal clusters on hermetic compressor shells. The two-page illustrated publication includes dimension diagrams, ratings, and operating directions.

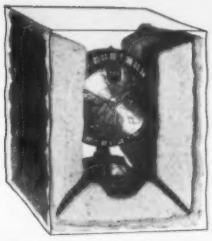
**General Electric Company**

Write No. 12 on Information Card—Last Page

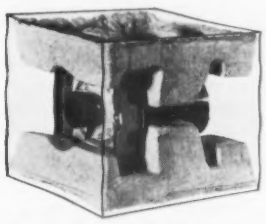
*Want to cut package costs?*
*Want to cut packaging labor costs?*
*Want to cut BOTH?*

# SWITCH TO TEKMOLD®

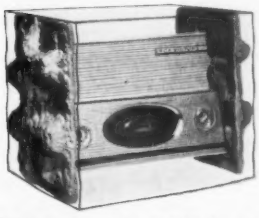




Novelty calendar shows TEKMOLD ability to engineer enclosures for fragile objects of unusual shape.



Precision timer "floats" safely between TEKMOLD protective forms.



Radio in low-cost TEKMOLD for utmost shipping safety.

## *Protective Packaging that "floats" your products safely*

Protection is the first reason for packaging your products in TEKMOLD, the custom-molded cellulose forms that provide a truly protective cushion.

When you can get *major savings*, too, you've really hit the jackpot.

Radio manufacturers, for example, report package savings up to 9 cents per unit on table models, and labor savings up to 3 cents per unit, after switching to TEKMOLD from multiple-piece, die-cut corrugated assemblies that must be laboriously hand-assembled. And those savings are typical.

TEKMOLD is adaptable. It may be the answer to *your* problem. For the complete TEKMOLD story, write, wire or phone us today.

**TEKMOLD**
2850 LINCOLN AVENUE
DEPARTMENT P • PL 5-1664
MUSKEGON, MICHIGAN

BEMIS BRO BAG CO ®

For More Facts Write No. 176 on Information Card—Last Page



For More Facts Write No. 177 on Information Card—Last Page

## Catalog Files

### SPRAY NOZZLES

Bulletin 115 gives information on automatic spray nozzles for hydraulically atomizing sprays at operating pressures up to 600 psi. A typical installation is schematically illustrated and described along with accessory equipment.

**Spraying Systems Co.**

Write No. 13 on Information Card—Last Page

### SWITCHES

Data Sheet 190 describes 22-ampere steady state current capacity switches. Includes photograph, dimension drawings, electrical data, operating characteristics, and pricing information.

**Micro Switch**

Write No. 14 on Information Card—Last Page

### TAGS AND LABELS

A catalog containing color examples of tags, labels, and die cut specialties. Includes specifications for over 50 items, such as pressure-sensitive labels, marking tags, and tickets.

**National Tag Co.**

Write No. 15 on Information Card—Last Page

### VALVES

Catalog DCV-1 shows a line of control valves from ¼ in. to 6 in. sizes. The eight-page bulletin includes pressure and temperature ratings, features, capacity charts, names of parts, dimensions, flow charts, and sample specifications.

**OPW-Jordan**

Write No. 16 on Information Card—Last Page

### WATER FOUNTAINS

Form A-392R describes compact stainless steel drinking fountains that can be converted to supply refrigerated water.

**Sunroc Corporation**

Write No. 17 on Information Card—Last Page

### WIRE CLOTH

A 16-page catalog on wire cloth. Illustrates and describes plain, twill, dutch, micronic, and special weaves. Presents specifications and characteristics of coarse to extra-fine meshes in tables and curves. Also includes applications.

**Unique Wire Weaving Co., Inc.**

Write No. 18 on Information Card—Last Page




## DIAGNOSIS: SEVERE TELEPHOBIA

## CURE: AMERICAN AIRLINES AIRfreighters & JETS

Your multi-air carrier shipping problems to more than 3,000 markets can be solved by *one call* to America's leading cargo airline. This single contact puts the nation's largest fleet of DC-7 commercial all-cargo planes at your disposal—fully pressurized, 15-ton capacity.

These AIRfreighters—plus a fleet of 707 Astrojets* with more consistent jetfreight capacity than ever before—are American's answer to your air shipping needs. Now, whether your shipments are big in size, weight or both, American has the handling capacity with more than 800 daily flights. You can give same day or next morning delivery to 3,042 markets served by American through 50 major cities. And you deal with just *one carrier*. One call does it all.

Complete service like this day-after-day is why more shippers move more freight on American than on any other airline in America. *Ship with the professionals*—call American AIRfreight.

*Service mark of American Airlines, Inc.

**AMERICAN AIRLINES**

*America's Leading Cargo Airline*

For More Facts Write No. 178 on Information Card—Last Page



Rapid outside temperature variations require reliable heating systems to protect delicate carnation plants. Here, a six-inch main line feeds off to two-inch feed lines. Over 34,000 ft of Spang Steel Pipe was used to provide overhead heating in four Denver greenhouses.

# SPANG Steel Pipe installed in new type heating system at 4 Denver greenhouses

Until recently, greenhouse heating pipes were usually installed under growing benches. Flower growers believed that maximum root action could be obtained through alternately sprinkling the soil and drying it with heat from the pipes.

Today, in Denver, this has changed. In four new greenhouses in the Denver area, controlled air moisture provides just the right humidity throughout the greenhouse. And SPANG Steel Pipe has been installed *over* the growing areas to provide uniform steam-heat temperatures the year around.

## Denver weather creates heat control problems

Raymond Petty, co-owner, Petty Greenhouse Construction Company, Denver, reports: "About 90% of greenhouse production here is in carnations, and these plants are very susceptible to cold weather. We get rapid temperature variations, and it takes an efficient and dependable heating system to protect the high investment in plants. We must guarantee a 50°F inside temperature at minus 10°F outside.

"We know with SPANG we have a good, uniform, reliable pipe in the heating systems. The pipe arrived in excellent condition—no burrs or interior obstructions, no holes or leaks at the threaded joints. It has excellent welding characteristics. We installed about 34,000 ft of SPANG in the four greenhouses, and we expect it to give at least 20 years of service."

## Let SPANG uniformity work for you

. . . to help you make fast, trouble-free installations. See your local SPANG Distributor for service. SPANG Steel Pipe is one of the many fine products produced by *National Supply Division, Armco Steel Corporation, Two Gateway Center, Pittsburgh 22, Pa.*

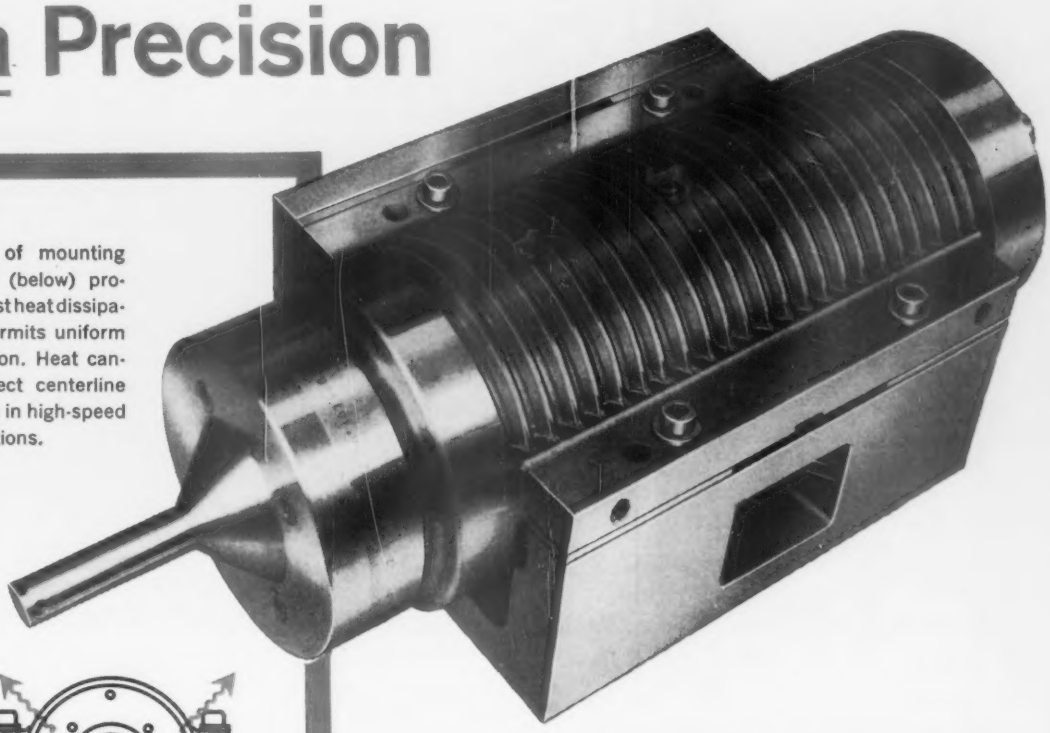
Steel's Symbol of strength, long life, and economy

**SPANG Distributor: Central Pipe & Supply Co., Denver, Colorado**

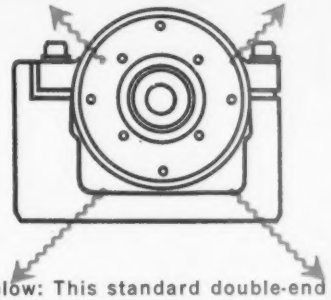
ARMCO National Supply Division

For More Facts Write No. 179 on Information Card—Last Page

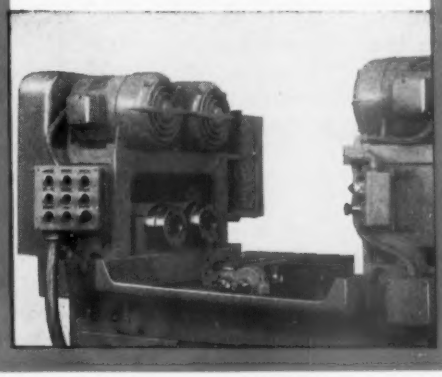
# NEW Ex-Cell-O Spindles for Ultra Precision



Design of mounting bracket (below) provides fast heat dissipation, permits uniform expansion. Heat cannot affect centerline position in high-speed applications.



Below: This standard double-end Ex-Cell-O Precision Boring Machine provides a steady platform for the ultra-precision boring job described at right.



The special spindle shown above is one of 16 identical Ex-Cell-O Ultra Precision Boring Spindles recently developed for an extremely demanding boring operation.

Customer specifications called for a guaranteed maximum allowable .00003" on roundness, with a 10 RMS or better surface finish. The spindles Ex-Cell-O delivered have consistently held .00002" on roundness, with a 6 micro-inch surface finish (and the customer has ordered duplicates)!

Why do the new Ultra Precision Spindles and other standard and special Ex-Cell-O Boring and Grinding Spindles give consistently greater accuracy, finer finishes and longer, trouble-free life?

The answers are: Engineering and production experience (more than 40 years); exclusive design and construction (using famous Ex-Cell-O Spindle Bearings); and job-tailored availability (Ex-Cell-O offers the most comprehensive line of belt-driven, air-driven, motorized and high-frequency spindles available today).

Need fast delivery of Precision Spindles for original equipment or replacement use? Call your Ex-Cell-O Representative today, or contact Ex-Cell-O in Detroit.

60-85

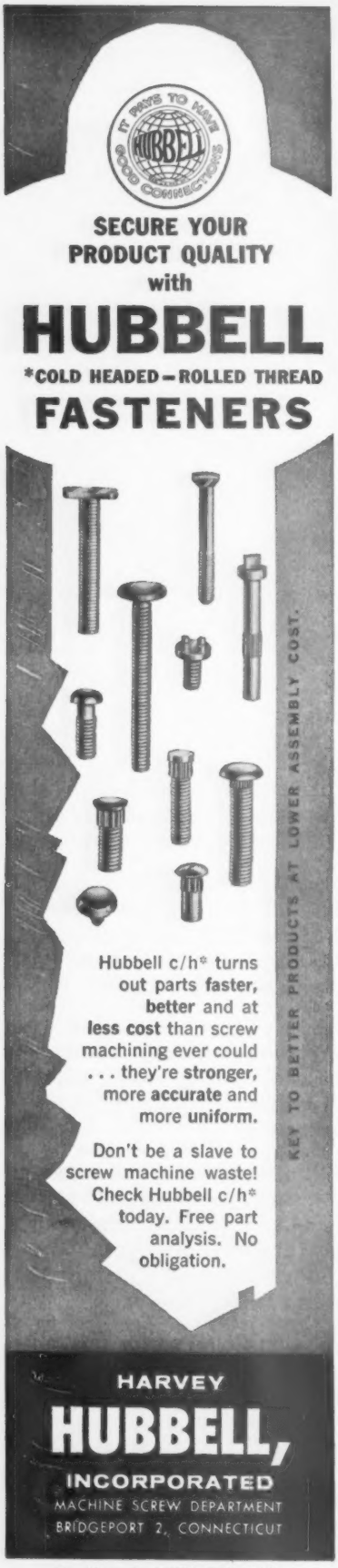
EX-CELL-O FOR PRECISION

PRECISION MACHINE TOOLS • GRINDING AND BORING SPINDLES • CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • JIG AND FIXTURE COMPONENTS • TORQUE ACTUATORS • CONTOUR PROJECTORS GAGES AND GAGING EQUIPMENT • GRANITE SURFACE PLATES • COMPUTER PRODUCTS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • ATOMIC ENERGY EQUIPMENT • DAIRY AND OTHER PACKAGING EQUIPMENT

Machinery Division

EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

For More Facts Write No. 180 on Information Card—Last Page



For More Facts Write No. 181 on Information Card—Last Page


# Letters To The Editor

## OTHER SIDE OF COIN

Dear Sir:

There was an article on page 75 in the April 10, 1961 issue of PURCHASING Magazine entitled "How Engineers Can Help The Purchasing Agents."

This was a very good article and can be helpful to many industrial plant maintenance and operating problems. I am just wondering if it would be well for someone to write an article entitled "How the Purchasing Agents Can Help Engineers," so as to be of better service in our purchasing field.

H. J. Foil
Crown Zellerbach Corp.
Bogalusa, Louisiana

## VALUE ANALYSIS IN AIR FORCE

Dear Sir:

Your May 22, 1961 issue had a very interesting article entitled "Value Analysis Saves Air Force $500 Million."

The Air-Force Conservation-Cost Reduction Program requires responsible personnel to visit Air Force contractors and encourage participation in the program which will produce savings and improve company's competitive position.

We would appreciate receiving several copies of the May 22 issue to be used as an assist in "selling the objectives" of Conservation-Cost Reduction Program to the contractor.

Major Joseph B. Owen
U. S. Air Force
Philadelphia Air
Procurement

Dear Sir:

Permission is requested to copy and distribute to purchase methods analysts an article from your June 8, 1959 issue. The article was entitled "How To Analyze Values In Packaging and Shipping."

Since our purchase methods analyst program is still in the pioneering stage, we are attempting to gather pertinent information that would assist our field men in the analyses of purchasing systems.

We feel this article would be a means of stimulating incentive in cost reduction in packaging and shipping, heretofore a somewhat dormant area of value analysis.

Lt. Colonel John King
Central Contract
Management
Wright-Patterson, Ohio

## G.E.'s SLIDE RULE

Dear Sir:

Dean Ammer's very interesting article about General Electric which appeared in the May 8 issue refers to the development of a slide rule. It is used in the application of the learning curve to purchasing department activities.

Can you tell me where I can purchase such a slide rule?

J. C. Condon
North American Aviation
Inc.
Los Angeles 45, Calif.

• *The slide rule referred to in the General Electric article was developed for internal use, and, as far as we know, is not for sale anywhere.*

## STANDARDIZATION FORMULA

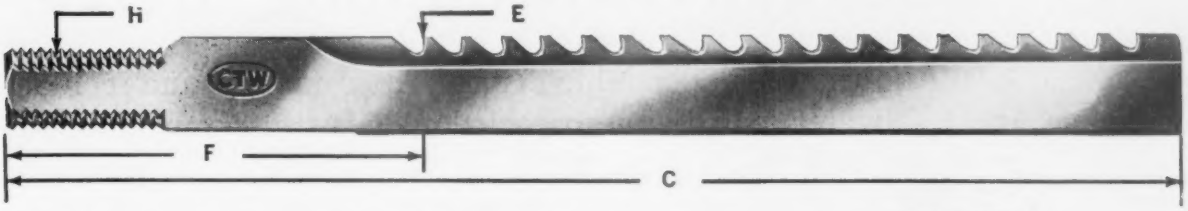
Dear Sir:

Standardization in business today is an expanding institution. Regarding the cover of your July 31 issue: We would like your formula of getting red print from a black lead pencil.

W. L. Look
American Brakeblok Div.
American Brake Shoe Co.
Winchester, Virginia

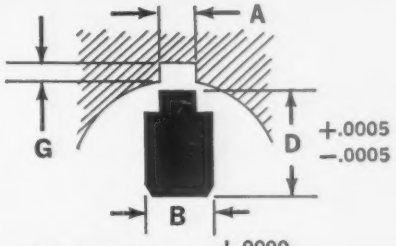
• *Assuming the theoretical P.A. using the memo pad follows the custom of making his notes with a red pencil and crossing them off with a black pencil when the project is complete, the formula we used is* $BL = \Delta(RP)/RP$ *where* $BL$ = *black lead,* $\Delta$ = *partial derivative, and* $RP$ = *red pencil.*

# CTW Keyway Broaches in Stock NOW for Immediate Delivery!




Continental now stocks a popular range of standard keyway broaches to help you meet production schedules faster than ever, and to let you cut your tool inventory.

Just call your CTW Representative, or order by catalog number direct from Continental. The broaches you need are in stock now—ready for immediate delivery to your plant!




Sizes listed below are available for immediate delivery. See the CTW Catalog for other standard broaches. Special sizes quickly made to order. Send your print for a prompt quotation.

| Catalog Number | A Keyway Width | | | Min. Hole Size | Min.† Length Cut | Max. Length Cut | Width of Body B | Total Broach Length C | Height at Last Tooth D | Height at First Tooth E | Length of Shank F | Keyway Depth in Part G | No. of Cuts | Thread H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nom. Dim. | Decimal Dim. | Tolerance | | | | | | | | | | | |
| **BROACHING INDUSTRY SERIES** | | | | | | | | | | | | | | |
| 502 | 3/32 | .0948 | ±.0002 | 7/16 | 1/2 | 1 1/2 | .1865 | 24 | .367 | .309 | 8 1/4 | .058 | 1 | 5/16-18 |
| 504 | 1/8 | .126 | ±.0002 | 1/2 | 1/2 | 1 1/2 | .249 | 30 | .438 | .364 | 9 | .074 | 1 | 3/8-16 |
| 505 | 1/8 | .126 | ±.0002 | 11/16 | 5/8 | 2 1/2 | .3115 | 36 | .594 | .520 | 10 | .074 | 1 | 1/2-13 |
| 508 | 3/16 | .1885 | ±.0002 | 11/16 | 5/8 | 2 1/2 | .374 | 36 | .581 | .476 | 10 | .105 | 1 | 1/2-13 |
| 512 | 1/4 | .251 | ±.0002 | 11/16 | 5/8 | 2 1/2 | .374 | 36 | .612 | .476 | 10 | .136 | 1 | 1/2-13 |
| 513 | 1/4 | .251 | ±.0002 | 1 | 11/16 | 4 | .499 | 45 | .877 | .741 | 11 11/16 | .136 | 1 | 5/8-11 |
| 514 | 1/4 | .251 | ±.0002 | 1 7/16 | 7/8 | 6 | .624 | 51 | 1.250 | 1.114 | 13 1/2 | .136 | 1 | 3/4-10 |
| 517 | 5/16 | .314 | ±.0002 | 1 | 11/16 | 4 | .499 | 45 | .908 | .741 | 11 13/16 | .167 | 1 | 5/8-11 |
| 519 | 3/8 | .3765 | ±.0002 | 1 1/16 | 11/16 | 4 | .499 | 45 | .938 | .739 | 11 13/16 | .199 | 1 | 5/8-11 |
| 520 | 3/8 | .3765 | ±.0002 | 1 5/16 | 7/8 | 6 | .499 | 54 | 1.189 | .990 | 13 1/2 | .199 | 1 | 5/8-11 |
| 523 | 1/2 | .5015 | ±.0002 | 1 1/2 | 11/16 | 4 | .624 | 48 | 1.312 | 1.051 | 12 | .261 | 1 | 3/4-10 |
| 524 | 1/2 | .5015 | ±.0002 | 1 1/2 | 1 | 8 | .624 | 48 | 1.377 | 1.246 | 16 1/2 | .261 | 2 | 3/4-10 |
| **ORIGINAL CTW SERIES** | | | | | | | | | | | | | | |
| CTW 7 | 3/16 | .1885 | ±.0002 | 11/16 | 1/2 | 2 1/2 | .375 | 36 | .581 | .480 | 9 | .101 | 1 | 1/2-13 |
| CTW 10 | 1/4 | .251 | ±.0002 | 11/16 | 5/8 | 2 1/2 | .375 | 38 | .612 | .480 | 9 | .132 | 1 | 1/2-13 |
| CTW 11 | 1/4 | .251 | ±.0002 | 1 | 11/16 | 3 1/2 | .500 | 44 | .877 | .740 | 10 | .137 | 1 | 5/8-11 |
| CTW 14 | 5/16 | .3135 | ±.0002 | 1 | 11/16 | 4 | .500 | 46 | .908 | .740 | 10 1/2 | .168 | 1 | 5/8-11 |
| CTW 17 | 3/8 | .376 | ±.0002 | 1 1/16 | 11/16 | 4 | .500 | 46 | .938 | .740 | 10 1/2 | .198 | 1 | 5/8-11 |
| CTW 23 | 1/2 | .501 | ±.0002 | 1 1/2 | 11/16 | 3 1/2 | .625 | 46 | 1.422 | 1.160 | 10 | .262 | 1 | 3/4-11 |
| **ORIGINAL XLO SERIES** | | | | | | | | | | | | | | |
| XLO 3 | 3/16 | .1885 | ±.0002 | 19/32 | 15/32 | 1 1/4 | .250 | 28 | .541 | .438 | 8 1/4 | .103 | 1 | 1/8-16 |
| XLO 5 | 3/16 | .1885 | ±.0002 | 5/8 | 5/8 | 2 | .375 | 28 | .541 | .438 | 8 1/2 | .103 | 1 | 1/2-13 |

†MINIMUM LENGTH OF CUT RECOMMENDED TO PREVENT PART FROM DROPPING BETWEEN TEETH OF BROACH

61-33C

Continental CTW TOOL WORKS DIVISION OF EX-CELL-O CORPORATION DETROIT 32, MICHIGAN

For More Facts Write No. 182 on Information Card—Last Page

# General Electric Makes Eddy-current-coupling Drives

And they're dependable drives. The complete line includes water-cooled and air-cooled eddy-current couplings. We call them KINATROL* drives. Ratings are from 1 to 150 horsepower, operating from standard a-c power.

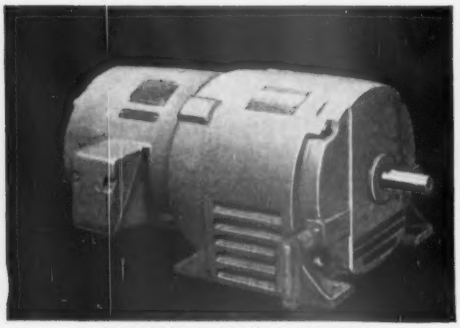
A General Electric KINATROL drive is not just another eddy-current coupling. For instance, in the water-cooled coupling, water control is packaged. You'll see much less external piping. Furthermore, the coupling is protected from flooding—and the air gaps are dry, preventing corrosion.

KINATROL couplings are compact, field proven and dependable. General Electric has had a good deal of experience in the engineering, manufacturing, and application of packaged adjustable-speed drives. And we know how important service is to a customer.

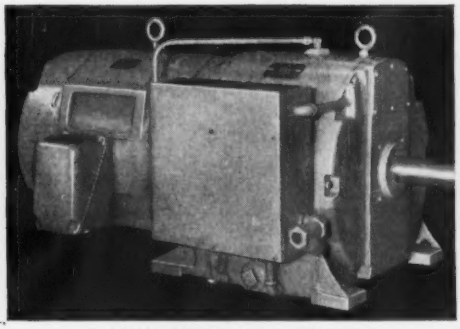
KINATROL —a good product, with the kind of service you can depend on. Please call your nearest General Electric Sales Office for further details.

*Trademark of General Electric Company

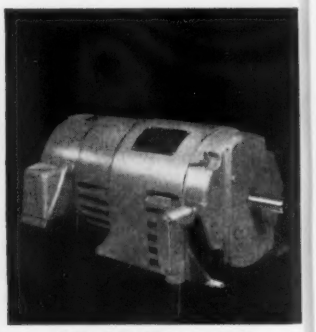
821-07



AIR COOLED, 7-1/2 to 100 HP



WATER COOLED, 25 to 150 HP



AIR COOLED, 1 to 5 HP

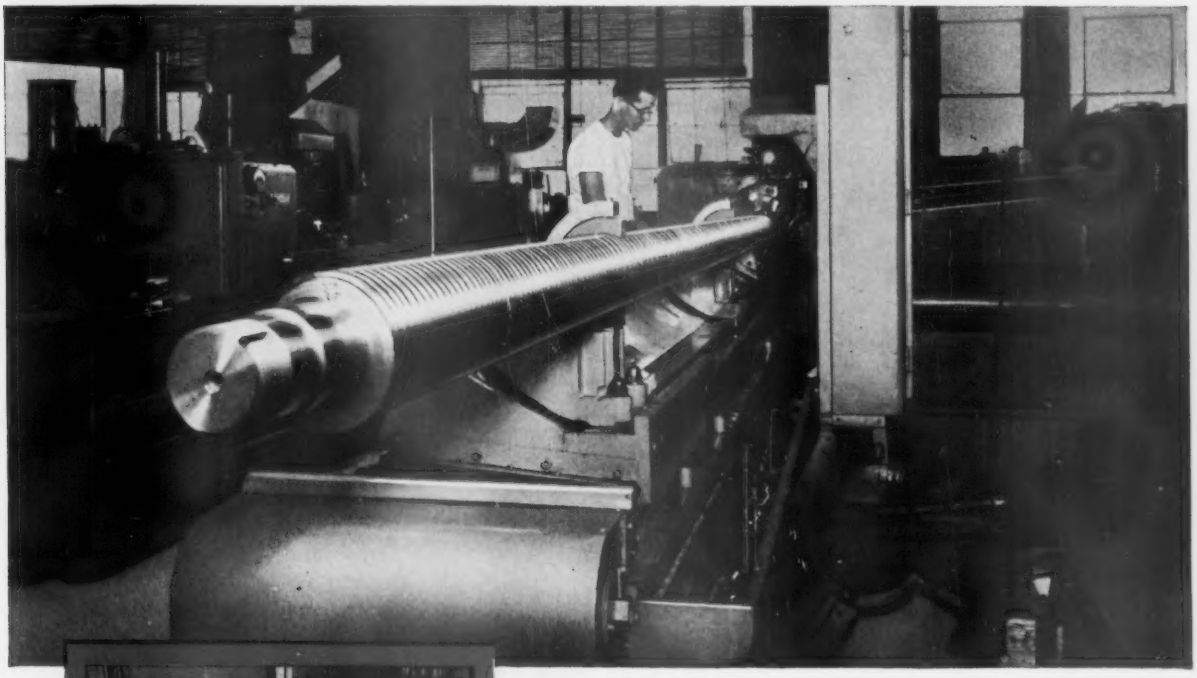
DIRECT CURRENT MOTOR AND GENERATOR DEPARTMENT

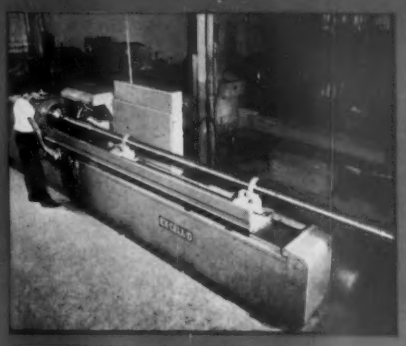
GENERAL ELECTRIC

ERIE, PENNSYLVANIA

For More Facts Write No. 183 on Information Card—Last Page

# FAST DELIVERY of Lead Screws and Threaded Parts!





The lead screw shown above in a Model 120 Ex-Cell-O Thread Grinder is 19 feet long, 5 inches in diameter. Guaranteed tolerance is ± .0002" per inch, ± .0005" per foot, non-accumulative.

- All thread forms
- Any size, any quantity
- Regular, worm or ball-race
- Guaranteed accuracy

Ex-Cell-O can quickly deliver custom lead screws and threaded parts in any quantity, in any size from miniature to twice the length of the 19-foot screw illustrated. Thread types include worm, ball-race, Acme, Modified Acme, Buttress, Whitworth and others in all classes, I.D. and O.D.

The Ex-Cell-Ability to design, develop and produce precision parts to your specifications is amply supported by modern quality control, heat treatment, machining and inspection methods and fast service. For a prompt quotation, contact our Representative nearest you, or send us your prints.

61-31J

EX-CELL-O FOR PRECISION

PRECISION MACHINE TOOLS • GRINDING AND BORING SPINDLES • CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • JIG AND FIXTURE COMPONENTS • TORQUE ACTUATORS • CONTOUR PROJECTORS GAGES AND GAGING EQUIPMENT • GRANITE SURFACE PLATES • COMPUTER PRODUCTS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • ATOMIC ENERGY EQUIPMENT • DAIRY AND OTHER PACKAGING EQUIPMENT

Precision Parts Division

EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

For More Facts Write No. 184 on Information Card—Last Page

# Purchasing People In The News

**Mr. S. V. O'Brien** has joined **Diehl Manufacturing Company, Finderne, N. J.,** as manager of material control. His responsibilities will include production con-



S. V. O'Brien

trol, purchasing, shipping, receiving and warehousing.

Mr. O'Brien is a graduate of Fordham University's Evening School and holds a B.S. in Education degree.

**Alan Wood Steel Company, Conshohocken, Pa.,** has announced the appointment of Mr. Augustus D. Lagomarsino as purchasing agent.

Mr. Lagomarsino most recent-



Augustus D. Lagomarsino

ly has served as general manager, customer services. Since joining Alan Wood in 1940, he has held various positions in the accounting department, including budget director and assistant controller.

He was graduated from Temple University in 1940.

**Mr. Joseph D. Fish** was recently appointed director of purchasing of **Glass-Tite Industries, Inc., Providence 4, R. I.**

Mr. Fish was previously production buyer for the Semiconductor Division of Raytheon Com-



Joseph D. Fish

pany, Newton, Mass. He holds a B.S. in Business Administration from St. Joseph's College, Philadelphia, Pa., and is a resident of Providence, R. I.

The promotion of **Mr. Paul Dunn** to the position of purchasing agent for the **Industrial Divi-**



Paul Dunn

**sion** has been announced by **Aeroquip Corporation, Jackson, Mich.** Mr. Dunn was previously assistant purchasing agent. The Industrial Division's purchasing offices are at the main plant in **Van Wert, Ohio.**

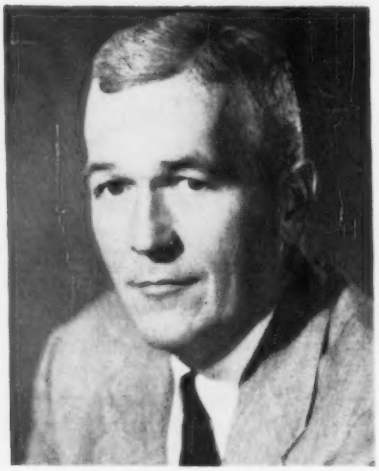
A graduate of the University of Michigan, Mr. Dunn has been with Aeroquip for ten years.

**Mr. William C. Moore,** former production control manager, has been named purchasing agent for **Cohu Electronics, Inc., Kin Tel Division, San Diego, Calif.**

Mr. Moore, who joined Kin Tel in 1954, will supervise all activities of the purchasing department at the Division. He attended the University of Texas before his military service and while in the Marines attended Harvard University and Massachusetts Institute of Technology.

Appointment of **Mr. Robert L. Lozon** as vice president in charge of purchasing and trade relations for the **Glidden Company, Cleveland, Ohio,** was announced recently.

Mr. Lozon joined the Glidden



Robert L. Lozon

Company in 1933 in the trade sales department of the paint division. Subsequently he served as a buyer in the purchasing department until he entered military service in 1942.

He returned to the company in 1946 as a buyer and served in that capacity until his appointment as general purchasing agent

(*Please turn to page* 230)



**PROBLEM:** How to specify moisture protection for your product without being an expert on packaging papers or coatings

**SOLUTION:** With International Paper's new "Levels of Protection" you buy precisely the packaging protection you need and no more

Now, with its "Levels of Protection," International Paper cuts through the confusion resulting from the many different types of moisture-barrier papers available today.

The "Levels of Protection" system provides the first effective yardstick for comparing one moisture-barrier paper with another. This means you don't have to be an expert on papers, coatings and weights to get the best packaging for your money.

This new rating system evaluates all our moisture-barrier papers—regardless of type or weight of coating—against a scientifically graduated scale of *levels of protection.* Knowing what product you package, we can quickly recommend the most effective level of protection for that product.

But this rating system has another dimension. Since we can supply a number of different types of moisture-barriers for any given level of protection, we can offer you the *one* barrier that *most economically* furnishes the level of protection you require for your product.

This new system is another example of the complete packaging service offered you by International Paper. Service which includes a complete range of paper packaging and paper packaging materials, skilled packaging engineers, printing and design service.

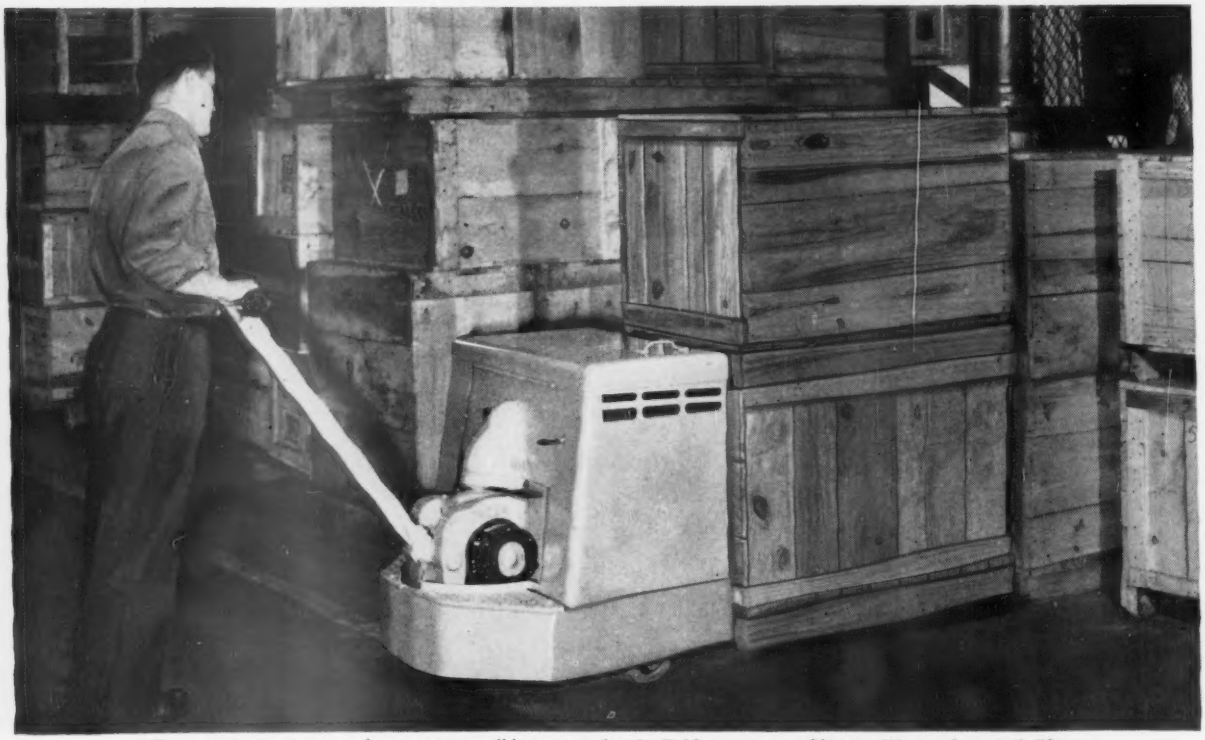
For full details, call any of our sales offices or write us direct.

INTERNATIONAL PAPER
NEW YORK 17, N. Y.

*Manufacturers of papers for magazines, books, newspapers • papers for home and office use • converting papers • papers and paperboards for packaging • labels • folding cartons • milk containers • shipping containers • multiwall bags • grocery and specialty bags and sacks • pulps for industry • lumber, plywood and other building materials*

# EXIDE POWER PACKAGE

**Exide Industrial Marketing Division,** The Electric Storage Battery Company, Philadelphia 20, Pa.

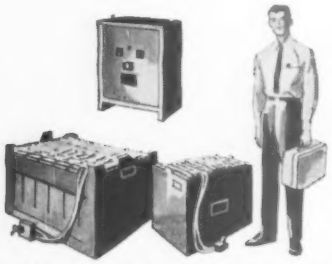


Extra economy assurance for your new walkie-type truck—the Exide guarantee of battery life equal to truck life.

# BATTERY GUARANTEED FOR LIFE OF TRUCK

Let's say you're about to buy a new walkie-type electric industrial truck. You want long battery life for maximum economy, and you don't want the nuisance of ever replacing the battery, if you can avoid it. Well, this is the Exide offer:

*For walkie-type low lift trucks and hand tractors, the recommended Exide nickel-iron-alkaline battery (the type invented by Thomas A. Edison) is guaranteed for the life of the truck—provided the truck remains in your possession and approved maintenance procedures are followed.*



**The Exide Power Package.** Recommended battery and charger from the world's broadest lines—plus factory-quality service to cover both.

This is not a reckless offer. Exide knows from countless actual performance records that these batteries readily give this kind of life. Many Exide nickel-iron-alkaline batteries have been used in walkie-truck service for upwards of 20 years and are still going strong. So the plain fact is that we are simply giving you positive assurance of battery value that is already there anyway.

Long life is one of the characteristics of Exide nickel-iron-alkaline batteries. They have other unique advantages too. They are lighter in weight than other batteries. They give off no corrosive fumes during use or while charging. And they can be stored indefinitely without injury. This is of special value during seasonal shutdowns or other inactive periods. All you do is discharge the battery, short-circuit the terminals and store in a clean, dry place.

Of course, for any type electric industrial truck—walkie, rider, or narrow-aisle—the maximum power economy depends on three factors: the right battery for the job, a charger to match, and needed service. This combination is the Exide Power Package.

Your Exide representative studies your requirements, then recommends the battery best for your needs from the broad Exide line. He is completely objective in determining your needs because Exide offers all types: Exide-Ironclad with tubular positive plates, Exide-Powerclad premium flat-plate, and Exide nickel-iron-alkaline. Exide chargers are available in both motor-generator and silicon rectifier types and in sizes to cover all needs. Exide service men are coast to coast, all factory trained on batteries and chargers.

The Exide Power Package is your easiest way to get not only maximum battery life in your applications, but maximum battery economy year after year. Write for details. Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

Exide®

For More Facts Write No. 186 on Information Card—Last Page

C/R®

DESIGN NOTES

# C/R offers new bonded CRS Seal design in standard sizes — without premium tooling charges





CRS CRS-A CRSH CRSH-A

## Design Advantages

The CRS Seal now provides a new level of C/R Seal performance through its simple, bonded design. There are no internal parts to misalign, no avenues for internal leakage. The shell and sealing member are integral — bonded securely for the long life of the seal. The CRS Seal incorporates a sealing member with both improved lip configuration and improved concentricity. The sealing member has been strengthened over former designs by placing more material at points of major flex and wear — and without increased shaft loading.

## Designer Advantages

The CRS Seal gives the designer one, basic, rugged shaft seal design which may be applied with high reliability to the great majority of common shaft seal applications — particularly in industrial, automotive, farm, and off-the-road equipment.

Four basic design variations are available. As you can see, these provide an auxiliary sealing lip, where it may be required, or provide extra rugged shell construction where conditions suggest the need to protect the seal lip against assembly damage — or where large, heavy-duty shafts are being sealed.

Selection of the new C/R Type CRS Seal gives the designer and buyer major advantages over special seals: shorter lead time on orders, simpler specification, savings in time and money, and improved assembly quality and reliability.

## Operating Maximums*

| | |
|---|---|
| Shaft Speeds | 3600 fpm (single lip)<br>2500 fpm (double lip) |
| Run-out | .015" TIR dynamic eccentricity<br>.010" static eccentricity |
| Temperature | −30 to +275°F.<br>(225°F. in EP lube) |
| Pressure | 5 psi (single lip)<br>10 psi (double lip) |
| Media | Oil, grease, fuel, water |

*Not all conditions present in one application*

## New, Improved Compound

Standard sealing members for the C/R Type CRS Seal are molded of a new Sirvene synthetic rubber compound having markedly superior sealing and wearing properties. It is a Buna-N-based material with low-friction characteristics. The CRS Seal can also be furnished in the usual special materials such as acrylates, Silicones, and butyls. Shells are of standard steel, but can be provided in corrosion-resistant materials on special order.

## Consult C/R Engineers

For assistance on the application of the new CRS — or on any oil seal problem, get in touch with C/R Oil Seal Engineers. They're specialists in fluid sealing — and will gladly cooperate with you.

## For More Design Data:

You will want the complete design data on the new CRS Seal. Write for our Bulletin CRS-100. It gives you the complete list of standard sizes, widths, O.D.'s, shell thicknesses and sealing lip heights. You will want it to compare and then specify C/R's CRS Seal.

**CHICAGO RAWHIDE MANUFACTURING COMPANY**

1239 Elston Avenue • Chicago 22, Illinois

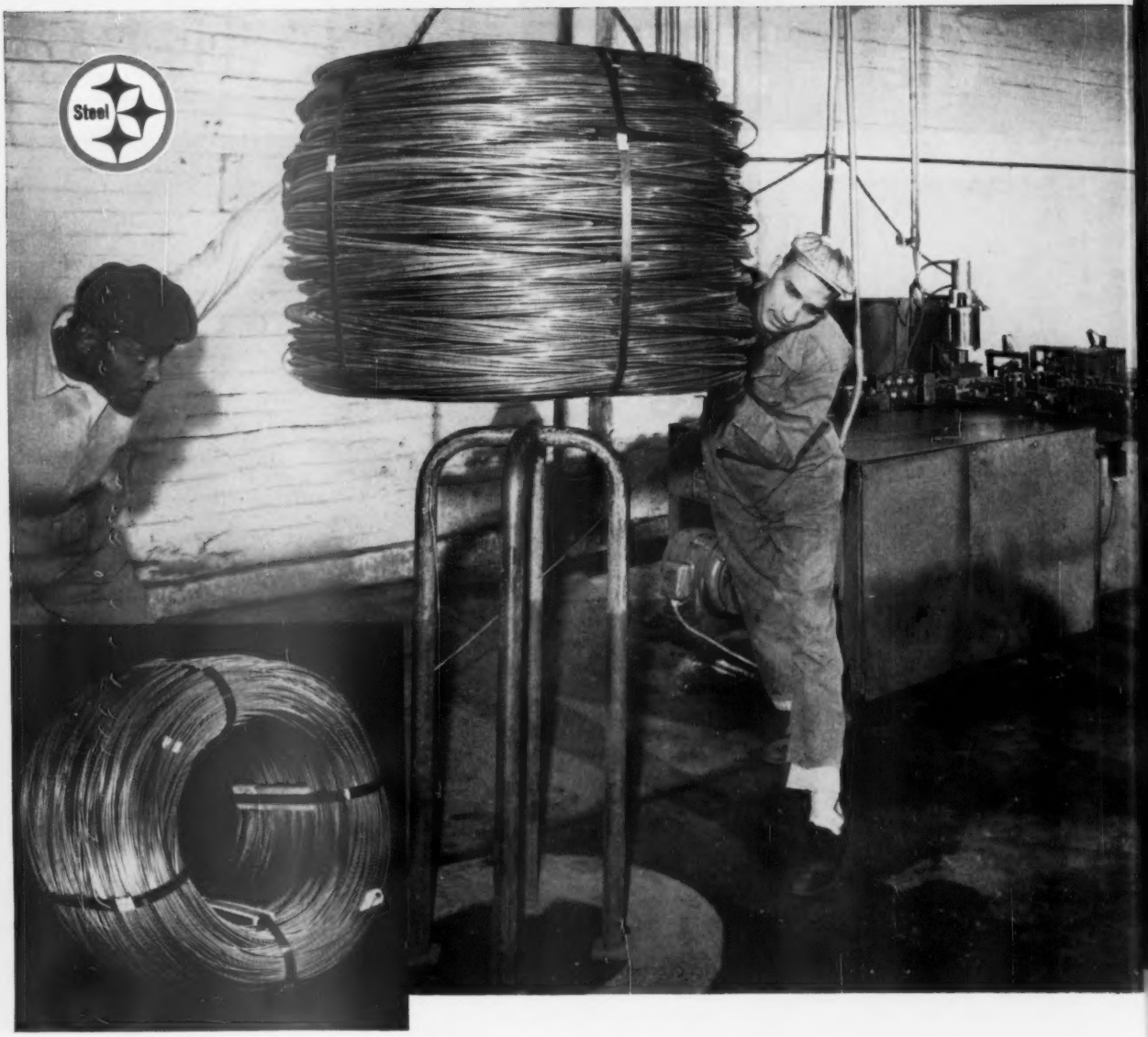
*Offices in principal cities*

See your telephone directory

**In Canada:** Chicago Rawhide Mfg. Co. of Canada, Ltd., Brantford, Ontario

**Export Sales:** Geon International Corp., Great Neck, New York

For More Facts Write No. 187 on Information Card—Last Page




# CF&I Shaped Coils and Stem-Paks® are Packaged for Your Production

**SHAPED COILS**

Here's a quote from one satisfied user, the president of a wire fabricating plant:

> "A CF&I salesman examined our operation and suggested that we use CF&I Shaped Coils as opposed to the small coils we had previously used. We now stop our machine only once to start a new coil, instead of 10 times a day. We save nearly 2 hours, and have increased our production by about 20%."

CF&I-Wickwire Shaped Coils contain between 1500 and 2500 lbs. of top quality wire in one continuous length . . . are bundled with four steel straps and, when necessary, wooden supports to insure that the coil is not distorted.

OPERATING ADVANTAGES: Increased production, reduced material-handling costs, less wire scrap and less storage space needed.

**DISPOSABLE STEM-PAKS**

The experience of a typical user:

> "Up to 75% of our production downtime was caused by using too many small coils. Stem-Paks hold 500 to 1000 pounds of continuous wire. These larger packages keep each machine running as much as 1½ hours longer per day. Stem-Paks allow for free unwinding, without snarling. CF&I Stem-Paks have increased our production 50%."

Stem-Paks hold 500-1000 lbs. of wire in one continuous



length . . . consist of a center core attached to a wooden base mounted on 4″ runners.

AVAILABLE IN: Sizes for 14″, 17″ and 21″ center core (inside diameter).

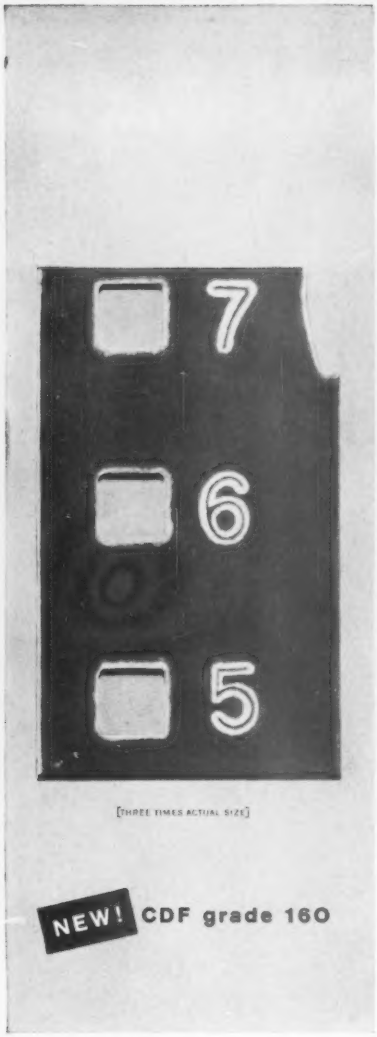
OPERATING ADVANTAGES: Ease of handling, reduced scrap losses, increased production and less storage space.

**Only CF&I offers a total of ten different wire packages.** You've just read how two of these packages have increased the production efficiency of leading manufacturers. One or more CF&I-Wickwire Wire packages can do the same for you. Our engineering staff will be happy to study your operation and recommend the type that best meets your requirements. For complete details, write your local CF&I sales office.



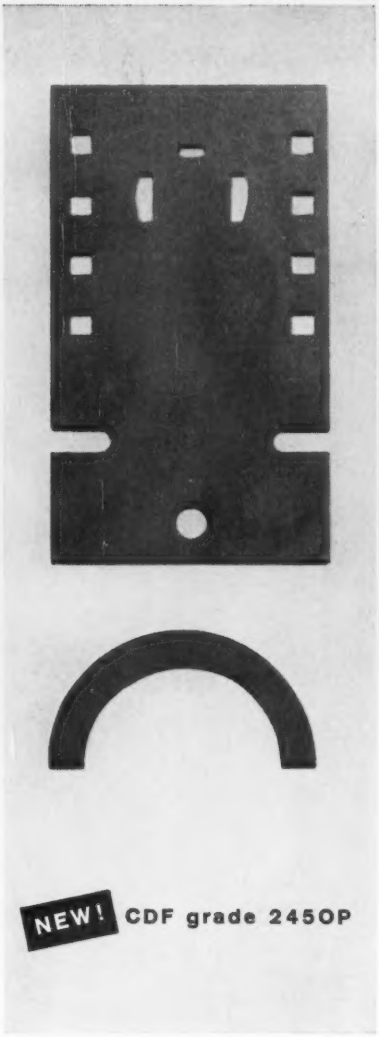

**THE COLORADO FUEL AND IRON CORPORATION**
**Denver • Oakland • New York**
**Sales Offices in Key Cities** 8114

For More Facts Write No. 188 on Information Card—Last Page

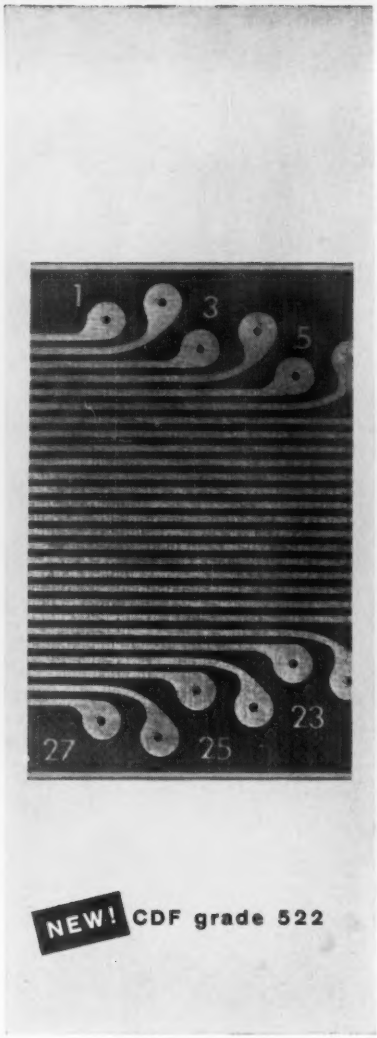



[THREE TIMES ACTUAL SIZE]

NEW! CDF grade 160



NEW! CDF grade 2450P




NEW! CDF grade 522

# three outstanding new laminates!

**High legibility letters,** numbers or symbols can be stamped on this new warm punch, paper phenolic grade in the same die used for blanking and piercing! No separate operation is necessary . . . no registration problems. Markings are permanent and in sharp contrast. Ideal for capacitor caps, terminal boards, panels, spacers, coil ends, socket bases. Meets NEMA X and XP requirements.

**Economical paper phenolic grade** 2450P can be punched warm and has improved mechanical strength and lower moisture absorption properties. It is designed especially for mechanical and low voltage electrical insulation applications such as connector blocks, coil and bobbin ends, washers, plug and socket bases. Meets NEMA X and XP requirements.

**Excellent wet electrical** and other improved properties make this new copper-clad glass fabric Teflon* laminate ideal for radar insulation, missile antennas, critical computer applications. Circuits based on this grade will show minimum drift under varying temperature and humidity. Also available without copper for such uses as high frequency insulation in wave guides.

*These are the newest materials of CDF research and engineering, developed to give you outstanding performance at minimum cost. Your inquiry is welcomed.*

*Du Pont trademark

CDF CONTINENTAL-DIAMOND FIBRE

CONTINENTAL-DIAMOND FIBRE CORPORATION, NEWARK, DELAWARE • A SUBSIDIARY OF THE Budd COMPANY

*New Model*

**FRACTIONAL HORSEPOWER**

# DYNAMATIC AJUSTO-SPEDE® DRIVE

EATON DYNAMATIC®



## *Steps up Reliability and Durability*

New in design but a veteran of proven dependability, the Eaton-Dynamatic Fractional HP Ajusto-Spede Drive offers a compact, low cost solution to adjustable speed control problems. Improvements include:

- **Longer operating life**
- **More uniform cooling**
- **Less noise and vibration**
- **Lighter weight**
- **Compact design**

The Ajusto-Spede Drive offers advantages not found in other methods of control. It is low in cost and easily installed. It is an integral combination of AC constant speed induction motor, eddy-current couplings, and single tube, electronic control. Special control functions, such as acceleration, inching, threading, cascading of multiple units, follower operation, constant tension and clutch motor operation can be provided by remotely mounted electronic controls.

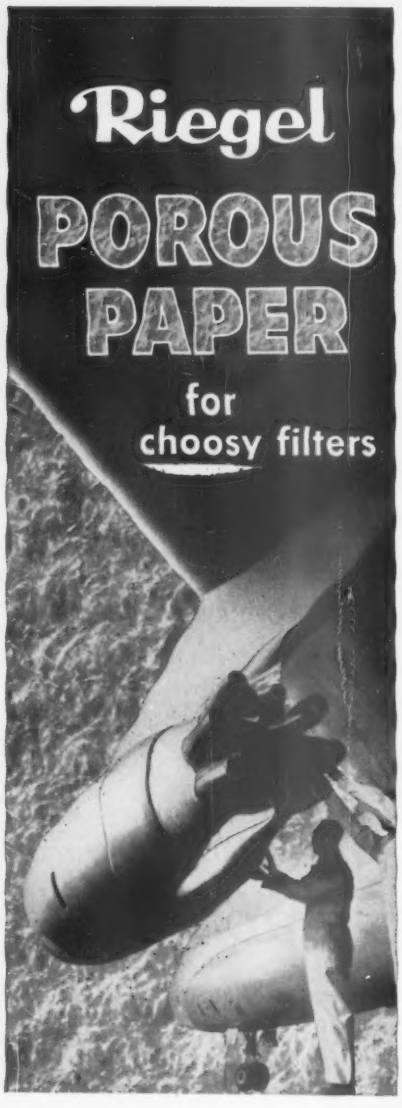
Ajusto-Spede Drives operate on standard 115/230 volt, single phase, 60 cycle or 220/440 volt, 3 phase, 60 cycle alternating current. No special power source is required. Available from the manufacturer or from your nearest Dynamatic Distributor in sizes of ¼, ½, and ¾ HP at 1600 RPM and ½, ¾, and 1 HP at 3200 RPM. Can be supplied with either of two types of electromagnetic friction brakes and integral speed reducer in a wide variety of gear ratios.

*Send for Illustrated Descriptive Literature*

**EATON** — DYNAMATIC DIVISION —
MANUFACTURING COMPANY
3122 FOURTEENTH AVENUE • KENOSHA, WISCONSIN

*...Your partner in progress through research...*

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It's not an ordinary paper that traps destructive sludge in oil, tiny motes of dust in air, corrosive droplets of moisture in gases . . . these marauders are now stopped in their tracks by "highly educated" Riegel filter papers. Other familiar examples are vacuum cleaner bags, oil filters in your car, hydraulic filters in jet engines and gas aerosol filters to trap atomic fallout. Riegel filter papers are made to highly technical specifications for each job.

Think a moment . . . can a filter improve your machines or processes . . . or solve a problem . . . *at the cost of paper?* Riegel has over 600 papers to serve industry in *products*, in *production*, in *packaging*. Write Riegel today describing your need.

TECHNICAL ADVISORY SERVICE
**RIEGEL PAPER CORPORATION**
BOX 250, NEW YORK 16, N. Y.

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# FOB-"filosofy of buying"

CLARENCE B. RANDALL, retired chairman of the Inland Steel Company, is a distinguished industrialist, an articulate observer of world affairs and, lately, a prolific magazine article writer. Several excellent pieces of his have appeared in *Dun's Review and Modern Industry*, the best of which, according to the thousands of P.A.'s who have read it, is "The Myth of the Slick Purchasing Agent."

Mr. Randall has another interesting piece in IBM's magazine *THINK* for September, called "The Business Call—A Duel of Wits." In it, he lays down some ground rules that could be applied to many purchasing-sales interviews. One of Mr. Randall's rules for the man being called on might provoke disagreement from some purchasing agents. Check your own ideas against this:

"When decision time comes," says Mr. Randall, "he (the man being called on) must pursue one of three courses:

"If what has been said pleases him, he must say so promptly, and with enthusiasm. The crispness of his decision, and the warmth of his approval can add much to the chance of success of what now becomes a joint project. To be coy deliberately for a while, and pretend coolness to the idea for the purposes of further bargaining, is not honest. That is the ancient technique of the oriental bazaar, and in the long run it casts doubt upon every subsequent attitude taken by the man who employs it.

"If what has been said displeases him, and he is sure, then he must say that with equal promptness. Nothing is to be gained by continuing a discussion that can have but one outcome. It requires a special gift, however, to be pleasant while being firm.

"If what has been said reveals that the evidence is not all in, and that there are further circumstances which must be explored before a decision can be taken, he asks that this be done. But he must not reach for that as an excuse for not making up his mind. The strong executive is one who can give an answer as soon as he fully understands an issue."

Is being coy, or cool an accepted negotiating technique or not? Many a good buyer would agree



Proof that Purchasing Magazine's editorial staff follows the great journalistic tradition of getting behind the handout is this shot of Barbara Grant (center) looking over a new IBM typewriter at a recent press conference. Barbara has just been named assistant editor after a year's outstanding service as editorial assistant.

that it is, while others will go along with Mr. Randall. What do you think?

Anyway, almost everyone (with the possible exception of the most talkative salesmen) will agree with Mr. Randall's contention that the entire interview shouldn't take more than 15 minutes.

"All ordinary proposals," he says, can be presented, considered "and determined in that period of time. Thirty minutes should be the absolute limit. Relevance is the key. Both men must stick resolutely to the issue throughout, with their minds in parallel, and not tangential.

"When the time study experts ultimately get round to measuring the efficiency of the business call, they will find that more minutes are wasted than are profitably consumed, a circumstance which reflects no credit upon management."

• •

THE NEW ENGLAND Purchasing Agents Association executed a notable public relations coup last month when it persuaded Massachusetts' Governor John A. Volpe to declare the week of October 22-28 "New England Purchasing Agents Week." The annual conference of District 9, National Association of Purchasing Agents, will be held in Boston on October 24 and 25.

In his proclamation, Governor Volpe said: "The activities of (the New England) Association have contributed immeasurably to the development and advancement of its members as well as the creation and promulgation of a business code of ethics." He noted also that "The Association has developed new techniques to advance the cause of trade, commerce, and buyer-seller relationships."

• •

IF YOUR cost reduction reports are looking a little skimpy these days, you might make yourself look good by buying a copy of the new city code of Chattanooga, Tenn. The code costs $67.50 a copy to print and is priced at $40.


WIRE CLOTH



for

FILTERING

SIZING

STRAINING

TESTING

In all metals, in all weaves ... woven to the highest accuracy standard in the industry. You just can't buy a better wire cloth than "NEWARK." Hundreds of meshes, weaves and metals to fit *your* specific need. Years of processing experience to help you pick the right wire cloth for *your* application. Write for Bulletin FC or write us about *your* problem. Fast deliveries, best cloth, lowest cost when you call on NEWARK.

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*Representatives in all principal industrial areas*

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# Built to drill reinforced concrete

**Stanley No. 404 portable drill gets critical strength from gears and pinions of Nickel alloy steel.**

This electrically powered impact drill is designed to cut through reinforced concrete, brick, stone, masonry materials, and concrete pipe . . . *without deflection.* It can drill holes or cut cores in any diameter from $\frac{3}{16}$" to 4" without chipping, cracking or breaking out when close to an edge.

To give this hard-hitting drill built-in stamina, Stanley engineers specify carburized AISI 4620 (1.8% nickel) for critical parts of the power train. The hard case and tough core of this nickel alloy steel stand up to the severe operating shocks of impact drilling . . . provide outstanding resistance to fatigue and wear.

**When you design, order, or use** heavily stressed machine components, remember that nickel alloy steels take the tough jobs in stride. For helpful engineering data on these alloys write to Inco. We'll be glad to help.

**THE INTERNATIONAL NICKEL COMPANY, INC.**
**67 Wall Street, New York 5, N. Y.**

**INCO NICKEL**
Nickel makes alloys perform better longer

# ONE STANDARD SCREW REPLACES MOST THREAD-CUTTING AND THREAD-FORMING SCREWS



# NEW

TYPE S

## TAPPING SCREW

with **LOW** drive torque...

HIGH strip torque

Square point provides 4 points of contact • Starts straighter • Offers chip-free driving • Low drive torque with high strip torque • Resists vibration . . . won't loosen • Uses same lead hole • Replaces most types of thread-cutting and thread-forming screws . . . simplifies inventory . . . assures better price break. Available in standard head styles, finishes and sizes . . . for unlimited applications • Compare features, tests, advantages and prices . . . You'll buy TYPE "S" tapping screws! Write for complete information.

NATIONAL LOCK

INDUSTRIAL HARDWARE DIVISION • NATIONAL LOCK COMPANY • ROCKFORD, ILLINOIS

International Division • 13 E. 40th St. New York, N.Y. • Cable: ARLAB

CABINET HARDWARE • LOCKS • PLASTICS • FASTENERS • APPLIANCE HARDWARE . . . ALL FROM ONE SOURCE

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# Keep jobs moving with...

# THERMOID Big T belt and hose

Thermoid can fill your specific need for hose or belt from the broadest line of belting in the industry and a hose line that covers every industrial application. Thermoid's reliability and availability on a moment's notice keep production on schedule by holding down-time to a minimum. Call your industrial distributor today for the right Thermoid hose or belting for any industrial use.

Quaker Thermoid



THUNDERBIRD
. . . wire braided

THERMINE
. . . rayon braided

SUPER IRONSIDES
. . . synthetic tube

VERSICON
. . . molded cover

**HOSE FOR AIR with high burst resistance**—Have tough, serviceable high-tensile yarn and/or wire reinforcement and provide strong burst resistance. Neoprene tubes and covers. Working pressure range from 160 to 400 p.s.i.

**HOSE FOR WATER SUCTION OR DISCHARGE**—Hose for either heavy-duty suction or discharge service withstands full vacuum and direct connection of centrifugal or piston pumps. Give long service in all industrial applications.

HERCULES
. . . wrapped cover

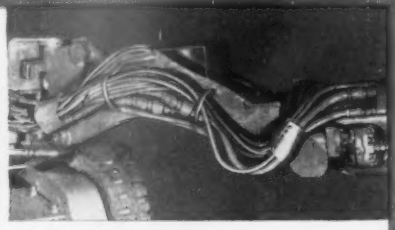
AQUAIR
. . . molded cover

MAINLINER UTILITY
. . . for economy

VICTOR CL
. . . for heavy duty

REVOLC
. . . wire reinforced





POWERFLEX WIRE BRAID
. . . oil-resistant tube and cover

WIRE BRAID COTTON COVERED
. . . oil-resistant tube

MEDIUM & LOW PRESSURE
. . . molded oil-resistant cover and tube

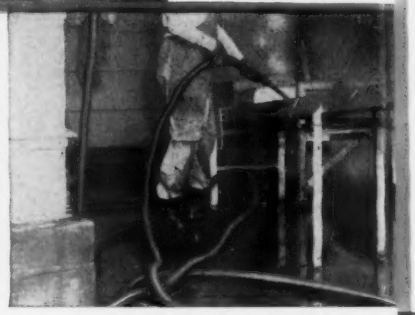
**HOSE FOR HYDRAULIC FLUIDS stands high pressure**—From high pressure applications for hydraulic jacks, riveting machines, dump trucks to low pressure uses for air tools, air and vacuum gauge lines, grease lines and many other applications.

SUPER IRONSIDES
. . . two layers braided steel

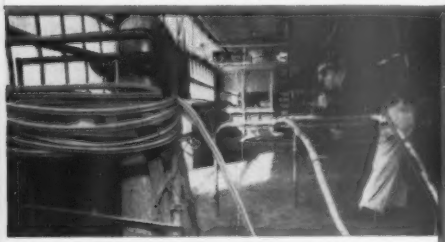
IRONSIDES
. . . one layer braided steel

SUPER EBONITE
. . . wrapped, five plies of duck

EBONITE
. . . wrapped, four plies of duck



**HOSE FOR STEAM withstands heat and pressure**—Features range from heat resisting tube, horizontal wire braid reinforcement to cotton duck plies. Suitable for hot water service. Working pressures from 100 lbs. to 200 lbs.



**HOSE FOR WELDING remains free-flowing longer**—Tubes insure free flow of gases. Will not scale, flake or peel. Brass female swivel barbed inserts with standard 9/16" welding equipment threads, attached with brass ferrules. Meets RMA-IAA specifications.

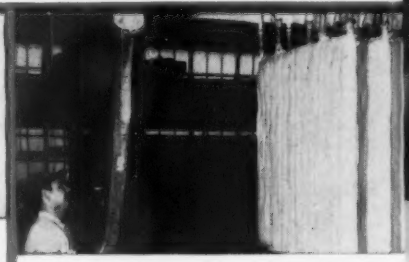
TULINE
. . . securely bonded to resist separation



350 L.P. GAS
. . . oil-proof tube

L.P. VAPOR LINE
. . . oil-resistant tube

**HOSE FOR BUTANE-PROPANE resists permeation**—LP gas hose for distribution and customer service. Resist volatile gas permeation. For vapor release lines and loading tank cars, domestic tanks, bottles and cylinders. Working pressures 300 to 350 lbs.



**HOSE FOR ACIDS AND ALKALIS with high resistance**—Suction and discharge hose in all types for industrial use, including chemical and steel plants, tanneries, fertilizer plants, acid manufacturing plants.

HYPALON TUBE
. . . cotton duck plies



**FIRE HOSE withstands pressure and usage**—A complete line of fire hose, each to meet specific service conditions—both municipal and industrial. Lightweight, flexible, easy-to-handle, resists hard use.



PETROCHEM
. . . 100% polyester fiber jacket



DELAWARE
. . . double jacketed cover



PORTER D. J. DELUXE
. . . bonded polyester fiber jacket



QUAFLEX
. . . Factory Mutual approved

# THERMOID Big T conveyor belts for any type of material



**BELTING FOR HOT MATERIALS**

**Kaloric.** Withstands temperatures to 350°F. Recommended for slag, cement, etc. In Neoprene or Butyl heat resistant cover compounds.

**Tricircle.** Resists heat up to 225°F. Handles near-glowing chunky material such as Hot Coke. Special Buna S cover resists heat that hardens and cracks ordinary covers.

**BELTING FOR OILY MATERIALS—Victor Neoprene.** Resists abrasion and oily conditions. High quality impregnated duck with neoprene skim between plies. Cover has high adhesion properties, weathers well.



**BELTING FOR PACKAGES—Ruff Top.** Many elastic, non-skid gripper points on cover give high co-efficient of friction, even on 45° incline. Furnished in 6" to 48" widths. Can be supplied with neoprene or natural rubber covers.



**BELTING FOR ABRASIVE MATERIALS**

**Victor.** Outstanding natural rubber belt for use where high tensile strength is required. Friction pull 20 to 24 lbs. Rubber cover tensile strength 3500 to 4000 lbs. In 6" to 72" widths in all cotton, nylon and cotton fabrics.

**Ebonite.** Excellent cold rubber belt for highly abrasive materials. Friction pull 16 to 19 lbs. Cover tensile 2500 to 3000 lbs. Breakers available for maximum resistance to impact tearing and gouging.

**Hercules.** An economical belt for moderately abrasive materials. Has 800 to 1000 lbs. tensile cover. Ply adhesion of carcass rated at 12 to 15 lbs. average.

**Plasticoal.** General purpose P.V.C. belt for coal mining use. Superior resistance to moisture and mildew, excellent resistance to edge wear and rips, superior flexibility, easy to handle in low coal seams. Also bears the U.S. Bureau of Mines designation #28-11. Can also be supplied in neoprene construction.

**Thermocoal.** Specifically for underground coal mine use. Bears U.S. Bureau of Mines designation #28-11 by meeting or exceeding after-flame and after-glow requirements. All neoprene construction.



**BELTING FOR FOODSTUFFS — Foodmaster.** Resists vegetable and fruit acids, imparts no odor or taste to foods. Friction pull 16 to 19 lbs. Rubber cover tensile 1700 to 2000 lbs. Meets F.D.A. requirements.

THERMOID POWERFLEX AND POWERFLEX WEDGE, FRACTIONAL AND MULTIPLE V-BELTS

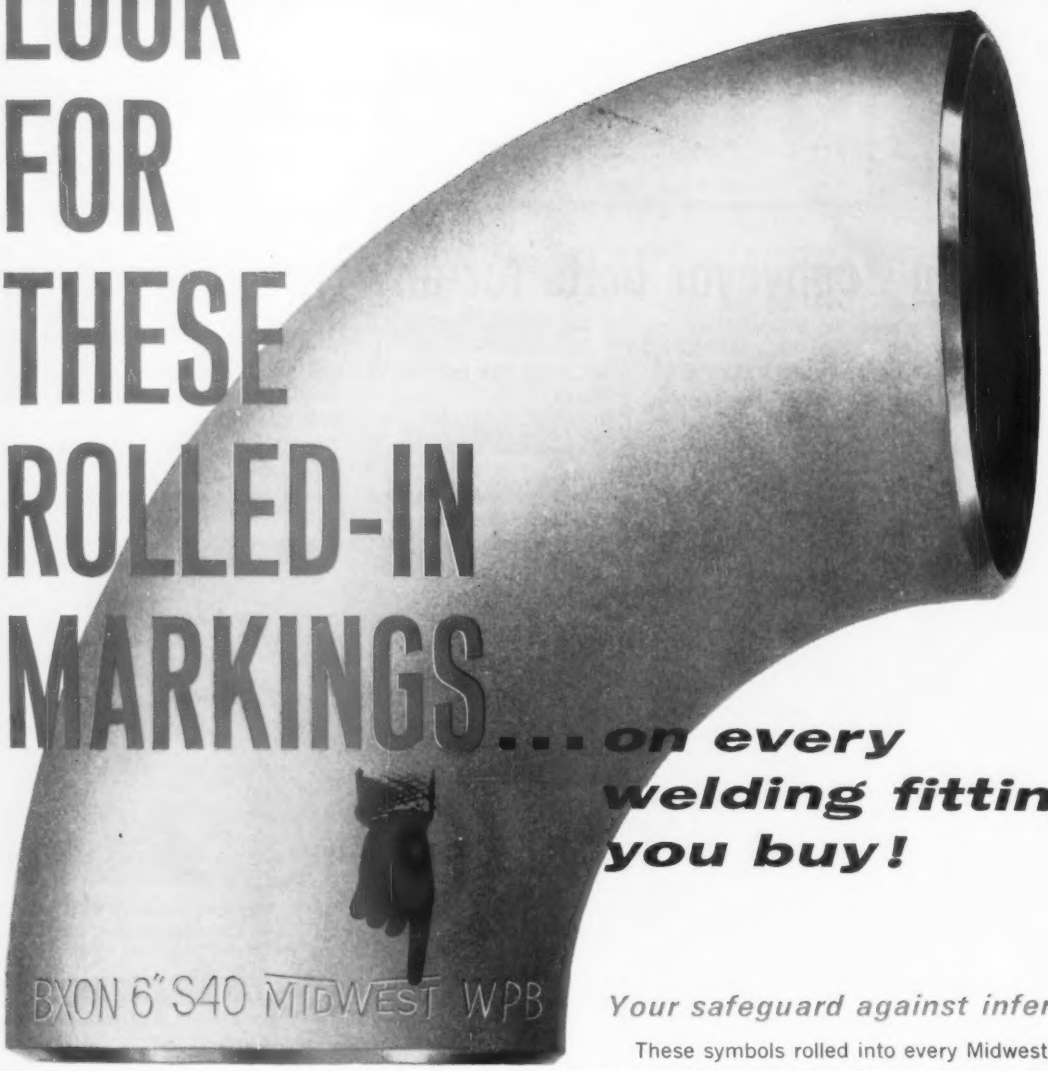
Static-resistant fractional and multiple V-belts in a variety of styles. Provide higher percentages of delivered power and offer top performance. Full size range. Write for complete details.

**THERMOID DIVISION PORTER H. K. PORTER COMPANY, INC.**

200 WHITEHEAD ROAD, TRENTON 6, NEW JERSEY

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# LOOK FOR THESE ROLLED-IN MARKINGS... on every welding fitting you buy!




BXON—**HEAT SYMBOL**—Used to identify physical properties, chemical analysis of raw material, radiographic control testing, and heat treatment.

6" S40—**SIZE AND WALL THICKNESS**

MIDWEST—**TRADE MARK**—Your Midwest distributor's guarantee of brand-new fittings made from prime domestic steel.

WPB **GRADE OF STEEL**—Your identification of the grade of steel... and your assurance that each Midwest fitting is made in full compliance with ASTM and ASA standards.

## *Your safeguard against inferior quality*

These symbols rolled into every Midwest fitting are your guarantee of brand-new fittings made from prime domestic steel in full compliance with ASTM and ASA standards!

Even the markings are made with specially designed low-stress dies to preclude injury to the steel. Care such as this demonstrates Midwest's sincere determination to manufacture fittings of highest quality throughout... unmatched anywhere!

Write for Bulletin 60C, ONLY MIDWEST MAKES BOTH, the story of how superior quality fittings are made from either seamless tubing or rolled plate.



MIDWEST PIPING

A Division of Crane Co. / 1450 South Second St., St. Louis 4, Mo.

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# Calendar of Coming Events




**Oct. 2-6.** National Hardware Show, McCormick Place, Chicago, Ill.

**Oct. 5-6.** American Foundrymen's Society, 9th Ohio Regional Foundry Conference, Netherland Hilton Hotel, Cincinnati, Ohio.

**Oct. 9-11.** National Electronics Conference, International Amphitheatre, Chicago, Ill.

**Oct. 10-12.** American Standards Association: 12th National Conference on Standards, Rice Hotel, Houston, Tex.

**Oct. 13-14.** Dayton Purchasing Agents Association and the University of Dayton: Procurement Conference, Patterson Memorial Center, 1815 Brown St., Dayton, Ohio.

**Oct. 18-20.** Purchasing Agents Association of Tulsa and University of Tulsa: Fourth Petroleum Industry Purchasing Management Seminar, Western Hills Lodge, Tulsa, Okla.

**Oct. 19-20.** American Foundrymen's Society, Michigan Regional Foundry Conference, Michigan State University, East Lansing, Mich.

**Oct. 23-27.** National Business Show: Coliseum, New York City.

**Oct. 29-31.** The Material Handling Institute: Joint Industry Annual Meeting, The Greenbrier, White Sulphur Springs, W. Va.

**Oct. 31-Nov. 1.** National Automatic Merchandising Assoc: First International Symposium of Automatic Merchandising, Chicago, Ill.

**Oct. 31-Nov. 1.** National Metal Trades Association; Biennial Meeting, Hotel Commodore, New York, N. Y.

**Nov. 1-2.** Packaging Association of Canada: 10th Canadian National Packaging Exposition, Automotive Building, Exhibition Park, Toronto.

**Nov. 7-10.** Packaging Machinery Manufacturers Institute Show of 1961, Cobo Hall, Detroit, Mich.

**Nov. 13-15.** American Petroleum Institute: 41st Annual Meeting, Conrad Hilton Hotel, Chicago, Ill.

**Nov. 13-15.** Steel Founders' Society of America: Technical and Operating Conference, Hotel Pick-Carter, Cleveland, Ohio.

**Nov. 14-16.** American Society for Testing Materials; International Symposium on Electrical Contacts, Pennsylvania State University, University Park, Pa.

**Nov. 16-17.** National Foundry Association: Annual Meeting, Savoy-Hilton Hotel, New York, N. Y.

SUBSCRIPTION CORRESPONDENCE AND CHANGE OF ADDRESS: Write to Circulation Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, N. Y. Please give title and company affiliation in all correspondence. Notify us promptly of any change of address. Be sure to give old as well as new address; include postal zone number, and new company name and title. Enclose address label from a recent issue, if possible. Since mailing labels are addressed in advance, please allow 5 weeks for change to become effective.

*Hints on fluorescent starter selection*



**G-E STARTERS GIVE YOU SPECIAL PROTECTION AGAINST SHOCKS**

General Electric puts insulating liners in its fluorescent starters, to protect maintenance people against the slightest chance of a shock. The liners prevent inside elements from touching and charging the outside metal can — a possibility in unlined starters if they are mistreated or dropped.

For extra safety — use G-E starters. And to get helpful starter ideas, ask your G-E distributor for the "G-E Starter Selection Chart and Maintenance Guide for Fluorescent Lighting." General Electric Company, Wiring Device Department, Providence 7, R. I.



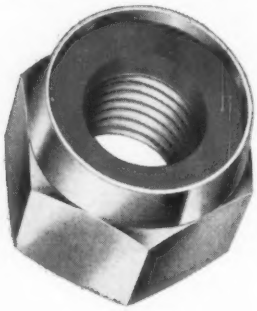

GENERAL ELECTRIC

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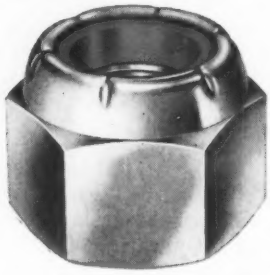
# UNSHAKEABLE SELF-LOCKING PERFORMANCE IS BUILT INTO AN ELASTIC STOP NUT



*Start with a standard hex nut and add a metal crown . . .*



*Add "the ring of reliability"— the easily identified ESNA red nylon locking insert . . .*



*Then roll the crown over smoothly and stake— the insert is made an integral part of the Elastic Stop nut*

## BUILD FASTENER RELIABILITY INTO YOUR PRODUCT!

Take an Elastic Stop nut and mount it on one of your products where vibration is really severe. Shake the daylights out of it in the roughest torture test you can devise—or better still—send it into the field where it's subject to regular use and abuse.

**Here's what you'll find:** That Elastic Stop nut will stay put! The bolt threads are impressed into the nylon locking collar with such a perfect fit that internal liquid seepage is sealed off. Internal nut and bolt threads are protected against corrosion. The nylon insert locking torque is so smooth that it never galls or distorts bolt threads; and nylon is so wear-resistant that under normal usage *you can wrench the nut on and off the bolt 50 times or more* and the nut will still remain tight under vibration! Protect the performance and the reputation of your product by guaranteeing fastener reliability. Try it yourself and see. Send for free test samples. Just tell us the size. Dept. S53-1015, Elastic Stop Nut Corporation of America, 2330 Vauxhall Road, Union, New Jersey.

ESNA **ELASTIC STOP NUT CORPORATION OF AMERICA**

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# Purchasing Pointers

ARE YOU A MAN OR A RUBBER STAMP?—A few years ago, P.A.'s campaigned against the use of rubber stamp signatures on purchase orders. Said it lowered the dignity of the purchasing agent or buyer, made him look like a clerk or an automaton. Now some big companies are swinging back to them, on the theory that most p.o.'s are handled in routine fashion and are never seen by executives in supplier firms. But consensus seems to be that the personal touch on a purchase order is better regardless of who sees it.

LET THE BUYERS RATE THE VENDORS—If you're planning a vendor rating program, don't fall into the trap of judging everything from the front office. Buyers deal with salesmen day in and day out, are closest to most problems that arise, and have firsthand knowledge of factors you may be unaware of. Before a rating is sent out of your office—either to top management or to a supplier—be sure it has been carefully reviewed by the buyer concerned.

BETTER ATMOSPHERE FOR BUYERS' MEETINGS—The logical place for regular meetings with your buyers is the conference room or some other spot in company headquarters. But why not change the locale occasionally—perhaps a local restaurant or club? In a relaxed atmosphere, away from the accouterments of every day business, your people may be more inclined to speak out oftener and more frankly. And the boost you'll give their morale will more than offset the dent the affair puts in your budget.

POSTCARD FOLLOW-UP SYSTEM—Certain types of follow-up require strong measures. But most follow-up problems are due to oversight or some other form of carelessness. A simple, standardized set of follow-up postal cards has produced good results for many purchasing departments. Quotation Request Follow-Up, Request for Acknowledgment, and Delivery Reminder Notice are single cards, asking for information. Last card in the series, Request for Delivery Information, has a return postpaid card attached. Supplier must fill in exact dates order (or part) has been or will be shipped.

CODE OF ETHICS—If your company has a written code of ethics, why not mail a copy to each of your suppliers? It may be a lot more effective than the usual no-gift letter sent to suppliers shortly before Christmas. Some suppliers may erroneously treat no-gift letters either as something to be ignored or even as a tacit invitation to send a gift. No supplier could be confused if he sees an official policy especially if it also covers ethical problems other than gifts and gratuities.




# Look for the label that assures weather resistance... high strength...pleasing appearance

This label on a glass-fiber reinforced panel is your assurance of *unmatched weatherability*. It appears only on panels made with PARAPLEX P-444 acrylic-polyester resin. Extensive laboratory and field tests have proved that the proper combination of acrylic and polyester resins produces the *best* weather resistance in reinforced panels. This combination is found only in PARAPLEX P-444, made by Rohm & Haas. The resin also imparts pleasing appearance, high strength, excellent light transmission, and ease of installation. Write for the names of panel manufacturers who use PARAPLEX P-444.

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# Education Starts With You

THOUGHTFUL, ambitious purchasing agents hardly need lectures on *why* they must continually work to increase their understanding of business and of the world in general. What puzzles many of them is *how* to get the education they need to bring them to their goals.

Each individual must, of course, work out for himself the kind of educational program suited to his abilities and circumstances. On-the-job training may be the only method available to those far from universities and big cities. Many have the opportunity to attend courses at nearby colleges, or participate in the special programs sponsored by the National Association of Purchasing Agents and its local chapters.

But there is one program available to all—indeed, one that is a prerequisite to any other type of education: regular reading. Anyone interested in getting ahead, from clerk to expeditor to purchasing agent to vice-president in charge of purchasing, should read regularly. This seems so obvious as to need no repeating. Yet the reluctance of many businessmen to partake of the riches available to them in the printed word is now the target of a number of campaigns by educators and education-minded industrial leaders.

From three different publications, I have picked almost at random, three different quotations which, read as a unit, give as powerful an argument for reading as I have seen. The first is from an article by Lamar Lee in our Sept. 11 issue; the second from the annual report of the National Book Committee; and the third from one in a series of ads by the International Paper Company:

"Many purchasing executives feel they are too busy for education . . . or too old to learn. They are wrong. The human mind's capacity to learn diminishes very little through the years. What does diminish is the desire to learn. It is too easy for one to become lazy."

"Libraries and reading are becoming more generally recognized as essential supports of education and the lifelong learning experience."

"We asked 100 company officers 'How many magazines, books, and newspapers have you read in the past week?' The total of their answers: magazines, 338; books, 53; newspapers, 1,490. Then we asked 100 men in the same age group whose salaries had never reached $7500 a year; 229 magazines for them—and 28 books. About a fourth of a book apiece. The conclusion is as clear as print. *Men who read more achieve more.*"

Paul V. Farrell

PURCHASING MAGAZINE
OCTOBER 9, 1961



# THE PURCHASING MANUAL—PART

- **Is it needed?**
- **How P.A.'s feel about it**
- **What types of manuals are there?**
- **What material should be included?**

**By JOHN VAN de WATER, Technical Editor and HAROLD BARNETT, Features Editor**

THE PURCHASING MANUAL is perhaps the most abused, most misunderstood, and yet most sacrosanct of all purchasing tools. It is used by fully half the industrial purchasing departments in the country, and by many institutional and governmental groups as well. Yet when PURCHASING Magazine asked 100 purchasing managers to say what they thought about purchasing manuals, the replies ranged from "essential" to "useless". Some P.A.'s even went so far as to say manuals "aren't worth the effort it takes to write them." A few of those who discredited manuals viewed them as a temporary weapon in purchasing's fight for recognition; and believe they will not be needed "when purchasing becomes an accepted factor in company management."

Is the purchasing manual really necessary? Or is it in fact useless, a waste of time, and just a sign of purchasing immaturity? The answers are not hard to find. The purchasing manual has survived both apathy and opposition. Today hundreds of purchasing agents use manuals successfully. They describe manuals in such terms as: "an effective means of defining purchasing's scope and intentions;" "the best public relations tool for a policy-making activity whose decisions have wide impact, both within and without the company;" "a simple way to clarify purchasing methods and so help requisitioners, buyers, and vendors do a better job."

### There Is No Standard

What's the main value of a manual? Purchasing agents have no single answer. Judging from their comments,(see box on p. 73), a manual can be anything from a policy statement to a buyer's guide; from a training tool to a status symbol.

Obviously no manual can perform so many different functions and perform them well. It is not surprising therefore that each P.A. wants a manual that will do the job that he considers most important.

The very flexibility of the manual is its greatest asset. There is no "standard." Each should meet the needs of the individual business and of the individual purchasing department. The manual can be a short list of purchasing objectives, or a detailed exposition of principles and procedures; it may consist of a few typewritten pages or run to several volumes.

Manuals fall into three distinct groups: the small, special purpose booklets, usually restricted to a statement of purchasing policy scope; the larger general manuals which describe purchasing responsibilities, organization, and procedures; and the multi-purpose, multi-volume manuals.

The last, of course, have limited application. Suited primarily to the large corporation, they cover a vast amount of detail and are therefore not easy to put together. They may be split up either by subject or by organization. The Minneapolis-Honeywell Aero Division manual, for example, consists of three separately bound books: one covers policies, another purchasing procedures, and the third, buyer performance

standards. I.B.M.'s manual has a separate set of procedures for each company division, while a corporate manual ties in general purchasing policies.

### From 7 Pages to 300

Both the small, special purpose booklets and the larger, one-volume manuals have the advantage of being extremely flexible. There are hundreds of good examples, ranging from M.I.T.'s succinct seven-page statement of purchasing policies and procedures, to Alcoa's thorough 300-page "Standard Procedure for Purchasing."

Manuals can be written to fit the needs of both small and large companies and for institutional and governmental purchasing departments. Medium-sized Wallace & Tiernan has a procedure manual only 16 pages long. It reproduces each purchasing department form and in simple words describes how to use them. Purolator Products' 14-page manual covers procedures from how to write requisitions to how to supply materials to subcontractors. A 35-page manual used by the Yonkers (N. Y.) Board of Education not only explains the duties of the purchasing agent and requisitioning methods, but includes a list of authorized supplies.

The P.A. who wants to write or revise a manual must first decide what he wants to accomplish. Selection of the type of manual and what goes into it are then relatively easy. (See checklist of manual subjects on p. 72).

An analysis of some representative manuals shows that P.A.'s consider five subjects most important:

— To state the scope and authority of purchasing;

— To explain purchasing policies to other departments and vendors;

— To standardize department organization and clarify the duties of various personnel;

— To serve as a guide to purchasing procedures;

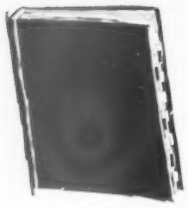
— To use as a training tool.

### Split Manual Into Sections

Although some of these functions inevitably overlap, the best manuals cover them in separate sections. The first two areas—scope and authority and policies—




Purchasing manuals range in size and scope from M.I.T.'s 7-page "Purchasing Policy and Procedure" (foreground) to I.B.M.'s huge compilation. Alcoa's "Standard Procedure for Purchasing," originally written by Thomas D. Jolly in 1934, was probably the first of its kind. It has served as a model for many others.



**"Start the manual with top-management endorsement. . ."**

are general and express the broad concepts of purchasing. They are directed to people outside purchasing, such as other departments, management, and vendors, often in a separate policy booklet. The third and fourth sections, directed to purchasing personnel, describe duties and procedures in as much detail as needed. Finally, the training function, is served by the overall manual.

### Building Block Approach

By splitting the manual into sections, the P.A. can concentrate on a single subject and is also able to give general distribution to one section while limiting another to internal use. If he wants to write a broad procedure manual, the sectionalized format makes it possible for him to construct it in building-block fashion.

Here is how the latest and best purchasing manuals handle each subject.

**Scope and authority:** Successful purchasing manuals begin with an endorsement by top management. Typical is the foreword in the Alcoa manual, signed by the company president. It reads in part:

"The Aluminum Company of America has prepared for the information of its several divisions —as well as for the guidance of its purchasing department—this book, *Standard Procedure for Purchasing*. It is to be considered the basic purchasing policy for the company and its subsidiaries."

After you've made it clear that the manual is an official company document, you need a precise definition of purchasing authority. I.B.M.'s corporate manual puts it concisely:

"The purchasing organization is responsible for buying all goods and services required by IBM, according to IBM policies and purchasing principles."

A more specific statement in the policy manual used by Daystrom's military electronics division reads: "The purchasing activity is responsible for the purchases of all parts, materials, supplies, equipment, and contract services. . . . No other activity has the authority to make commit-

## What Goes Into a Purchasing Manual?

The subjects you include will depend on two things: what you want the manual to do, and how your department operates. But for the average industrial purchasing department a general manual divided into three or four sections is most useful. Here are some of the topics that may be covered. The list is neither complete nor essential. For some purposes it is too detailed; for others, too limited. Nevertheless, it should be a help to anyone writing a purchasing manual.

**Foreword.** Endorsement by chief executive officer.

**Table of contents.**

**Part I. Responsibilities and objectives of purchasing.**

**A. Major responsibilities.** (Outline the broad functions of purchasing. Avoid descriptions of specific duties.)

(1) Formulate buying policies, plans, procedures.
(2) Gather material and market information.
(3) Procurement and expediting.
(4) Other (e.g. surplus disposal, receiving, traffic, etc.)
(5) Exceptions (e.g. buying advertising, insurance)

**B. Primary objectives.** (These should be the general goals of purchasing; a bit philosophical, perhaps, from which all policies are derived.)

(1) Serve the company economically and contribute to profits.
(2) Procure materials at lowest cost, consistent with quality and service.
(3) Maintain adequate sources.
(4) Keep inventories at minimum essential levels.
(5) Keep management informed of market conditions, procurement problems, etc.
(6) Cooperate with other company units.
(7) Search for new and improved materials.
(8) Explore standardization.
(9) Keep abreast of purchasing methods and techniques.

ments for the purchase of these items."

The Worthington Corp. manual gives a broader definition of purchasing responsibility:

"The purchasing department is responsible for the formulation of plans, policies, and procedures that govern procurement; . . . for keeping consistently informed as to the corporation's potential requirements for materials, equipment, supplies, and services; . . . for the procurement of the necessary materials, equipment, supplies, and services; . . . and for the disposal of all surplus, damaged, or obsolete materials."

### Spell Out Purchasing's Scope

A unique statement of purchasing's scope is American Cyanamid's four-page booklet *Purchasing Objectives and Principles*, which also forms part of a larger manual. Described as "broad guides to conduct" and as a "basis for formulating general rules for action," these principles are divided into four groups:

— "Objectives" state purchasing's basic procurement responsibility and the need to operate economically and profitably;

— "Operations" define the basis of vendor selection and the need for satisfactory vendor relations and good will;

— "Administrative" — twelve statements on the need for clear-cut policies, definitions of duties, standardized procedures, and

## WHAT P.A.'S THINK ABOUT MANUALS

Industrial purchasing departments are about equally divided between those who have purchasing manuals and those who don't. In a recent PURCHASING Opinion Poll, 46% of the purchasing agents who replied use manuals; 54% do not. Asked if they considered manuals useful, 79% said they did; 21% doubted whether manuals are worth the effort it takes to write them. Among those who favor manuals, opinion splits three ways on what should be included: purchasing policies, definitions of relations with other departments and suppliers, or descriptions of purchasing procedures.

There is general agreement (94%) that manuals help clarify purchasing authority. Other reasons P.A.'s give for compiling manuals are: they boost purchasing prestige, stimulate improvement of policies and procedures, and serve as training tools.

Those who don't favor manuals give these reasons: "It's out of date almost as soon as printed"; and, "useless for smaller companies where direct control is possible." One P.A. cautions: "A manual is useful only when company policy is 100% behind it, otherwise it is a waste of time and effort."

**Part II. Policies.** (Don't let procedures creep in. Define attitudes only.)

**A. General policies.**

(1) Determining need, specifications, quantities. (Who is responsible? Does purchasing have any influence?)
(2) Purchase commitments. (Who makes them? What are the restrictions?)
(3) Vendor contacts. (By purchasing only? Any limits?)

**B. Buying policies.**

(1) Central or local procurement. (Multi-plant companies should state what headquarters buys, etc.)
(2) Selecting sources of supply. (Discuss criteria used.)
(3) Multiple vs. single sources. (What are the advantages of each for your company?)
(4) Reciprocity. (Do you favor it? When is it practiced?)
(5) Buying from stockholders. (You may want to avoid this one.)
(6) Consideration of small business. (A "must" if you have government contracts.)
(7) Negotiation. (When should it be used, when optional?)
(8) Competitive bids. (When required; how many?)
(9) Trial orders and samples. (State the obligations.)
(10) Classified purchases. (Again, for government orders.)
(11) Speculative purchases. (You'll be against them unless you're in a commodity business.)
(12) Foreign purchases. (When should they be considered?)
(13) Interplant buying. (For multi-plant companies.)
(14) Employee purchases. (For or against?)

**C. Pricing and payment.** (Unequivocally state your position on each practice: when it may be used, when preferred, special conditions.)

(1) Unpricedl orders
(2) Estimated prices
(3) Escalation
(4) Liquidated damages
(5) Deferred payments
(6) Progress payments
(7) Cash discounts

*(Please turn page)*



## "Be sure to distinguish between policies and procedures. . ."

rigid managerial controls;

— "Ethics"—six statements endorsing honesty, integrity, and courtesy in purchasing affairs, and strong statements against commercial bribery, misrepresentation, and conflict of interest.

**Purchasing policies:**—the second of the five subjects P.A.'s find most important in a manual. Purpose of the policy section is to correlate the purchasing function with those of other departments and help promote sound vendor relations.

Well-organized manuals distinguish clearly between policies on one hand, and duties and procedures on the other. Duties state what purchasing does, procedures describe how, and policies explain management's attitude to specific purchasing situations.



One type of manual explains purchasing's policies and principles to vendors. It is best printed as a separate leaflet to be placed in the reception room. Visitors should be encouraged to take a copy.

### Clear-Cut Policies a Must

Few manuals try to cover every aspect of policy. But they do stress the most important, and emphasize that clear-cut policies are essential in making purchasing work. As one manual states:

"The purchasing department, as the connecting link between material demands and supply in company activities, must conduct its operations in accordance with well-defined policies in order that its efforts may be effectively integrated with those of other units of the business."

This manual then indicates who determines the need for material to be purchased, and who decides

**D. Relations with other departments.**

(1) Cooperating with requisitioners. (You will, of course; the point is to impress it on others.)
(2) Delegated authority. (Any circumstances when others may assume purchasing prerogatives?)
(3) Emergency orders. (You are prepared for them, but don't encourage them.)
(4) Dissemination of price information. (Who may get it?)
(5) Inspection.
(6) Receiving and traffic.
(7) Legal assistance.
(8) Credit assistance.
(9) Make or buy. (Who decides? Purchasing's role.)

**E. Vendor relations.**

(1) Receiving and interviewing salesmen. (Whom will you see? When? How long?)
(2) Evaluating vendor's prospects. (Are you prepared to tell him his chances, or do you prefer to hedge?)
(3) Advising unsuccessful bidders. (How much will you tell them? Will they have to ask?)
(4) Suggestions from suppliers. (Do you want them? What do you do with them?)
(5) Visits to vendors' plants. (Who arranges; who pays?)
(6) Backdoor selling. (You're against it, but what are the penalties?)
(7) Complaints and rejections. (Who handles them? What do you expect from the vendor

on the quantity and quality required. It states who has the authority to requisition, and who has the authority to buy. Other typical procurement policies require that all negotiations be carried out by purchasing, that no commitments be made by other departments, and that only engineering groups may determine specifications.

Policies on selecting supply sources include statements on vendor reliability, multiple sources, criteria to be used in evaluation, competitive bids and negotiated purchases, reciprocity, and foreign buying.

### A Question of Ethics

Most purchasing manuals include policies on vendor contacts. Typically they refer to arranging vendor interviews, courteous and prompt reception of salesmen, handling of complaints and rejections, discuss attitudes on free samples and trials, and cover confidential treatment of price information.

Payments policies refer to advance and deferred payments, cash terms, liquidated damages, etc.

Increasingly, purchasing manuals clarify the company's ethical standards—attitudes to gifts, entertainment, and conflicting interests. Many manuals include the statement: "We subscribe to the principles and standards of purchasing practices advocated by the National Association of Purchasing Agents."



**To be successful, the policy and procedure manual must be readily accessible to the buyer. To insure its use, contents should be practical, well-written.**

Although few companies cover personnel policies in their purchasing manuals, International Minerals & Chemical Corp. makes this interesting point:

"The company encourages division purchasing agents to join and participate actively in the National Association of Purchasing Agents."

**Organization and duties:**—third of the five subjects P.A.'s feel are most important in a manual. The manuals that are designed mainly as public relations tools usually do not go beyond statements of objectives and policies. But general purpose manuals that describe purchasing operations in detail customarily include a section on department organization and the duties of its personnel. A tendency to confuse purchasing duties with objectives or procedures is a common failing in this section of many manuals.

Rockwell Manufacturing Co. handles this area in a section labeled "Organization" which lists the specific duties of purchasing, including such subjects as buy-

as relief?)

(8) Cancellations. (Do you try to limit them? Will you pay costs?)

**F. Ethics**

(1) Courtesy and fairness. (Of course, you're against sin, but how you say it counts.)

(2) Confidential information. (What do you do to safeguard vendor confidences?)

(3) Entertainment. (How much is OK? Do your buyers have expense accounts?)

(4) Gifts and gratuities. (Where do you draw the line?)

(5) Conflict of interest. (How much is "interest"? If you have a code, to whom does it apply?)

(6) N.A.P.A. Code. (It helps to state the obvious and say you're for it; reprint it in full.)

**Part III. Duties and organization.**

**A. Specific duties of the purchasing department.**

(Make a detailed list, but if you think it's too obvious, the section may be omitted altogether.)

(1) Select vendors

(2) Place purchase orders

(3) Expedite

(4) Audit invoices

(5) Maintain order files

(6) Maintain catalog files

(7) Maintain price cards

(8) Disseminate product information

(9) Report to management

(10) Prepare statistics

*(Please turn page)*



**"Opinion is mixed on whether procedures should be included. . ."**

ing, expediting, invoice checking, collecting price information, disseminating new product information, reporting to management, etc. An organization chart showing personnel relationships and the flow of authority in purchasing completes the section.

### How Much Authority?

The equivalent part of the Worthington Corp. manual includes a position guide for each major purchasing position—vice president, purchasing managers, administrative assistants, and buyers. Each guide states the man's organizational relationships, to whom he reports and who reports to him; it also lists his specific duties and the extent of his authority.

**Procedures:** Should procedures be included in the purchasing manual? There is considerable contention among purchasing agents about this point and opinion is divided at least three ways. One group looks on the manual as a means of spelling out purchasing policies and objectives and does not favor "cluttering the book with how-to-do-it instructions." Another agrees with this view but would add information about purchasing organization and requisitioning procedures to aid other departments in dealing with purchasing. The third group, by far the largest, considers the manual primarily a set of standard practice instructions or as a guide to internal procedures.

Which group the manual-writing P.A. joins depends partly on his disposition, partly on his need. Obviously, a manual restricted to standard practices has little value as a public relations tool. On the other hand, one limited to overall policy statements is of no help to the buyer trying to write a service contract.

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**B. Organization.**

() Position of the purchasing department in the company
(2) Organization chart

**C. Position guides.**

(1) Guide for each key position: Director of purchasing, purchasing agent, buyers, expediters, administrators, analysts, etc.
a) To whom does the man report?
b) Whom does he supervise?
c) Specific duties of position
d) Authority: its limits and extent

**Part IV. Procedures.** (This can be a large section if each detail is included. Many purchasing agents, however, believe it has no place in a manual. If desired, it may be made a separate document. If your methods are relatively simple, there is probably no need for it at all.)

**A. Buying procedures.** (Reproductions or sample forms may be included.)

(1) Requisitions
(2) Inquiries
(3) Purchase orders
(4) Cash orders
(5) Blanket orders
(6) Invoices
(7) Receiving reports
(8) Change orders
(9) Rejections
(10) Credits
(11) Cancellations

**B. Filing practice.**

(1) Order files
(2) Inquiry files
(3) Catalog files
(4) Price files
(5) Part history files

**C. Contracts.** (This section should describe the various kinds of contracts, when they should be used, how they should be prepared.)

(1) Subcontracts
(2) Service contracts
(3) Construction contracts

**D. Special procedures.** (Those that require unusual attention, involve special trade practices, or are performed so infrequently that reminders are needed.)

(1) Buying raw materials
(2) Commodity buying
(3) Buying capital equipment
(4) Disposing of scrap and surplus

**E. Reports.** (Define each report, who gets it, what it contains, when it is due.)

**F. Statistics.** Explain where to get them, how to organize them, what to do with them.



The purchasing agent who is preparing to write a manual can get many helpful ideas from manuals in use at other companies. Most P.A.'s will lend copies on request.

Who needs a procedure section? Usually it's:

— the large company trying to standardize procedures among various divisions;

— the purchasing department that uses complex methods, such as automated procedures, extensive paperwork required by government contracts, etc.

— A procedure section is also useful in helping personnel take care of special or infrequent procedures such as selling surplus equipment, handling rejections, or writing construction orders.

**Solve the Procedures Dilemma**

A flexible way out of the to-write-or-not-to-write-procedures dilemma is used by General Precision's Kearfott Division. A 12-page printed booklet states procurement policies and objectives. It is distributed separately to management, other departments, vendors, and customers. Standard practices, however, are on mimeographed sheets. Purchasing keeps both sections together in loose leaf binders.

Another way of handling the procedures problem is simply to collect individual purchasing directives, notices, and special instructions in a single loose-leaf volume, and keep it separate from the policy manual. This approach eliminates the problem of keeping the manual up-to-date by separating the permanent material from that which changes frequently.

An example of a manual designed primarily as a procedure guide for requisitioners is M.I.T.'s booklet, *Purchasing Policies and Procedures*. In seven pages it includes a general policy statement by the university treasurer, a list of purchasing authority and responsibilities, and detailed procedures for requisitioning, receiving, and invoice approval which using departments must follow.




"I understand he's working on a new purchasing manual."

Many industrial and governmental purchasing manuals have extensive sections on operating procedures. A convenient arrangement is to tie purchasing paperwork to the forms associated with it. The Rockwell manual, for instance, discusses the use of requisitions, inquiries, purchase orders, change notices, and invoices. A sample of each form is included.

Other manuals add special subjects, such as service and construction contracts, capital equipment buying, or the disposition of scrap and surplus.

**Training:**—the last of five main manual subjects. Every purchasing manual is a potential training tool. Its usefulness, however, depends upon the amount of information it contains. The manual that contains extensive policy and

procedure detail is naturally going to be more valuable to the new buyer than the short statement of principles and objectives. Nevertheless, few purchasing agents recommend writing a manual specifically for training purposes. Its other functions, they agree, are more important.

Any analysis of purchasing manuals shows them to be one of purchasing's most versatile tools. But even though manuals contain much of value, no one book is a perfect example. Taken as a group, they are poorly organized, cluttered with unnecessary detail, and are too long, pompous, and verbose.

A purchasing manual can do many jobs. Whether it does them well, depends upon proper selection of information, emphasis of those points that are important to the individual purchasing department, good organization, and clear-writing.

The success of a manual depends too on how vigorously and intelligently it is followed up. "A manual can't deliver the goods for us," warned F. Albert Hayes years ago (PURCHASING Magazine, December, 1949, p. 110), "all it can do is help us deliver the goods."

The manual sets forth the rules, Hayes said, and the policies and gives purchasing the opportunity to live within them and encourage other departments to do the same. "If we—through inability, laziness, or fear—do not insist that we be allowed to do our job under the stated policies," he declared, "then are we purchasing agents or are we merely order clerks?"



# THE PURCHASING MANUAL—PART I

- **How to sell it to management**
- **Who should write it?**
- **What form should it take?**
- **How to write it**

THERE'S NO easy way to write a purchasing manual. It's difficult work that takes patience, endurance, diplomacy and a strong desire to complete what may sometimes seem an impossible task. And although the rewards are great for those who do the job, desk drawers all over the country are filled with never-to-be-finished manuals.

The first step in starting a manual is to get top management support. Without this kind of backing the project is doomed.

How do you go about getting top-level approval? One thing is certain. It's not the kind of project that can be left to a chance meeting on the elevator, a hurried phone call the afternoon the president is going on a trip, or as an afterthought at the end of a conference on an entirely unrelated subject. Most "opportunities" of this type start and end with the P.A. saying, "By the way, I've been thinking that there's a definite need for a purchasing manual. Is it all right if we go ahead?"

The answer is likely to be: "Not right now. Let's look into it when we have more time."

To get anywhere, you have to give the project the importance it deserves. Make an appointment with the president or the executive committee. Go to the meeting prepared. Be able to:

(a) State the advantages of a manual to the department and to the company. Often it helps to cite



The committee approach to manual writing is used by American Cyanamid Co. Headed by Manager of Purchasing Services Harold Stelzle, (left foreground), committee reports directly to Purchasing Director Harold La Rowe.

the experience of other companies which have found manuals useful;

(b) List problems that have come up which might have been prevented had there been a manual;

(c) Outline the way the manual would be prepared. Explain who will do the job and how.

(d) Estimate the cost of the manual—the approximate number of hours involved in preparation converted into dollars, plus an estimate of production costs;

(e) List those whom you believe should receive the manual.

If you are successful in selling top management on the idea, make sure that you get a foreword for the manual signed by the chief executive. This gives the manual the official approval it must have to be succesful.

After you have received top-management go-ahead, the next job is to get the cooperation of each of the department heads who will be directly or indirectly affected by the manual. This is a job that requires tact and patience. Inevitably some people will be suspicious of the project. Every effort should be made to show them that the only object in preparing a manual is to improve purchasing's operating efficiency and to provide better service to other departments.

### Who Gets the Job?

It's also essential to advise the entire purchasing department about the project. This is the only way to get the cooperation you will need. State clearly what will be done and who will be in charge. Explain what you hope to achieve, and in what ways you believe the manual will improve departmental operations.

With the selling job taken care of, you can start compiling the manual. But how do you decide who is best qualified to do the job? There's always the problem of trying to find someone who has both the skills and the time.

Some companies have been fortunate in being able to solve this problem by recalling a retired person who is thoroughly experienced in the company's purchasing operation. Usually a retired person welcomes the opportunity, and can give the job the time it needs at a reasonable cost to the department.

Another method which has been used successfully by a number of companies, including Dow Chemical and American Cyanamid, is the commitee approach. At Dow, each committee-man serves for a six-month term. Regular meetings are held and specific suggestions on what should be included in the manual are discussed. Then one of the committee members



**"To make the manual a success, you have to get cooperation of all. . ."**



A special manual mailing list simplifies distribution of new pages and revisions.



Many purchasing departments use liquid duplicating as an inexpensive, flexible method to reproduce manual pages.

is given the job of writing up a suggested "insertion" to be presented at the group's next meeting. The suggested addition is then reviewed and put into its approximate final form.

Before the addition is adopted, however, each member of the manual committee takes a copy of the proposal to his own section of the purchasing department to give others a chance to look it over. At the third committee meeting the proposal gets final approval and is cleared for inclusion in the manual by the director of purchases.

### Get Sample Manuals

American Cyanamid's manual steering committee is composed of six members: the manager of purchasing services, a research analyst, two commodity specialists, and two line purchasing agents. They work much like the Dow group, picking topics to discuss at committee meetings, but leaving the initial writing of given sections of the manual to individual members.

However the more usual approach to manual writing is to give the responsibility to one person. The first step, of course, is to collect the basic data. What information will be used depends on the type of manual being drawn up. Generally, this is a decision made by purchasing management. (During the early stages, sample manuals should be collected from purchasing departments of other companies. These are extremely helpful in deciding what kind of a manual you want.)

The principal sources of material for manuals are department and company memorandums, circulars, policy statements, special reports, forms and forms instructions, and reports of various conferences and meetings. It may also help to interview other members of the purchasing staff to get specific information.

### Don't Change Policies

There is a normal tendency when gathering material for a manual to try to improve existing policies and procedures. As a general rule, however, it is best not to get involved in this unless it can be done informally. What usually happens is that when changes are suggested there are likely to be long, drawn-out disputes. As a result the manual project is delayed, frequently is never finished.

The job of puting the manual together will move faster if existing material is included as is—with only essential editing. Clearance and final approval is much easier to obtain if the manual covers only existing practices.



## "Too much technical detail can kill a manual. . ."

(Ed Krech of J. M. Huber Corp., warns against loading manuals with too much technical detail. He points out that if a manual is going to be used by people in other departments, it's best to stick to broad policies rather than going into detailed procedures. The manual, he adds, should be characterized by brevity, clarity and simplicity.)

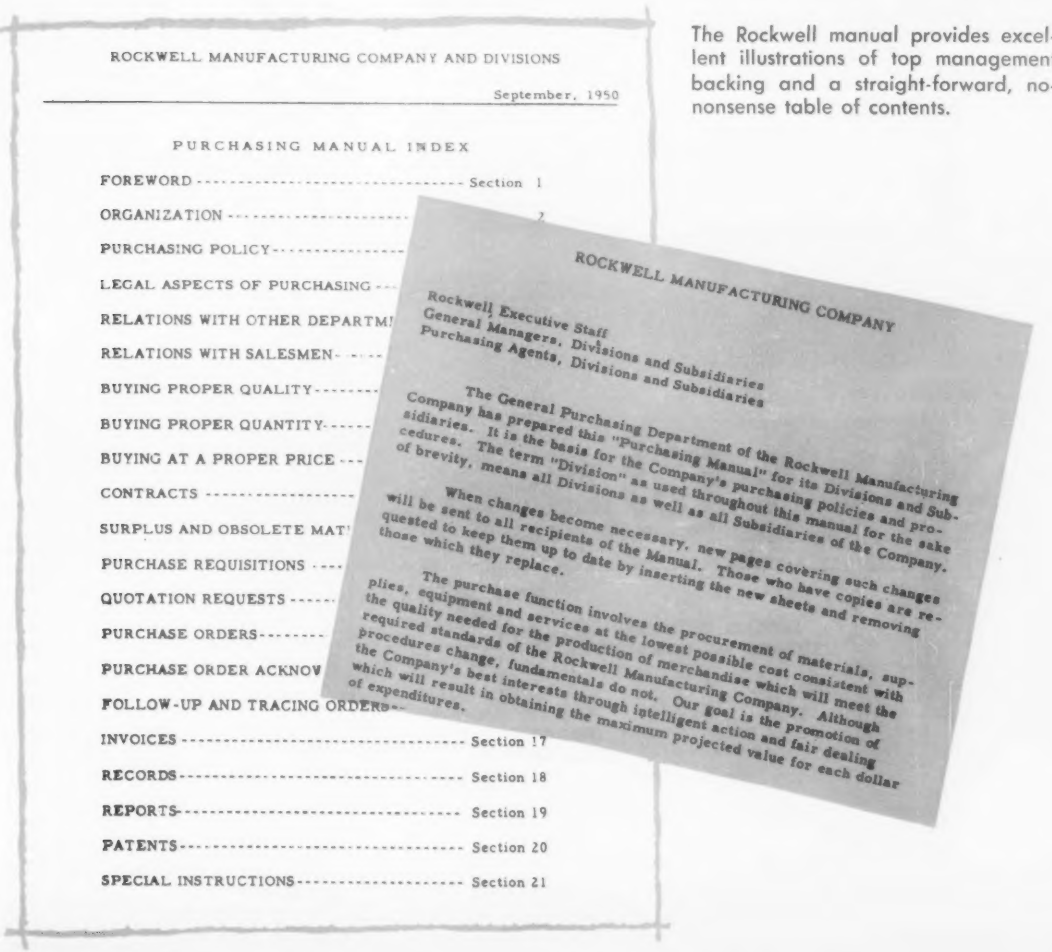
While compiling, screening and coordinating data, don't forget about the revision problem. The format, coding and general construction should be planned with the thought that inevitably there will be revisions.

So far as the format of the manual is concerned, it's usually best to use a loose-leaf binder or some similar type of cover which makes it easy to insert new pages. An increasingly popular type is the multiple-prong binder. Because the prongs are closely spaced, pressure is distributed equally so there is little chance of tearing a page.

### Margins Are Important

It is also important to select a binder with sufficient capacity. A jammed volume is difficult to read; frequently text gets squeezed too close to the binding. A series of binders may be required if one is not enough. There should be a wide margin (at least 1½ inches) on the bound side of the page. The margin on the outer edge is mostly a matter of appearance; at least one inch is allowed in the majority of manuals.

In preparing the manual, leave a large enough margin at the bottom of the page for brief revisions. If plenty of space is allowed at the bottom of the original page, it is possible to add sentences or even a paragraph to the same sheet without carrying over to a second sheet. Carry-over means that you have to add a new page



ROCKWELL MANUFACTURING COMPANY AND DIVISIONS

September, 1950

PURCHASING MANUAL INDEX


FOREWORD ---------- Section 1
ORGANIZATION ---------- 2
PURCHASING POLICY ----------
LEGAL ASPECTS OF PURCHASING ---
RELATIONS WITH OTHER DEPARTM!
RELATIONS WITH SALESMEN- ----
BUYING PROPER QUALITY --------
BUYING PROPER QUANTITY ------
BUYING AT A PROPER PRICE ---
CONTRACTS ----------
SURPLUS AND OBSOLETE MAT!
PURCHASE REQUISITIONS ----
QUOTATION REQUESTS ------
PURCHASE ORDERS --------
PURCHASE ORDER ACKNOV
FOLLOW-UP AND TRACING ORDERS--
INVOICES ---------- Section 17
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ROCKWELL MANUFACTURING COMPANY

Rockwell Executive Staff
General Managers, Divisions and Subsidiaries
Purchasing Agents, Divisions and Subsidiaries

The General Purchasing Department of the Rockwell Manufacturing Company has prepared this "Purchasing Manual" for its Divisions and Subsidiaries. It is the basis for the Company's purchasing policies and procedures. The term "Division" as used throughout this manual for the sake of brevity, means all Divisions as well as all Subsidiaries of the Company.

When changes become necessary, new pages covering such changes will be sent to all recipients of the Manual. Those who have copies are requested to keep them up to date by inserting the new sheets and removing those which they replace.

The purchase function involves the procurement of materials, supplies, equipment and services at the lowest possible cost consistent with the quality needed for the production of merchandise which will meet the required standards of the Rockwell Manufacturing Company. Although procedures change, fundamentals do not. Our goal is the promotion of the Company's best interests through intelligent action and fair dealing which will result in obtaining the maximum projected value for each dollar of expenditures.

The Rockwell manual provides excellent illustrations of top management backing and a straight-forward, no-nonsense table of contents.

and may be forced to change a number of following pages.

In numbering the pages of the manual, it's best to use a coding system which groups each major subject and with the pages numbered independently of other sections. This makes it possible to revise one section without affecting the page numbers of other sections.

There are a number of ways to do this:

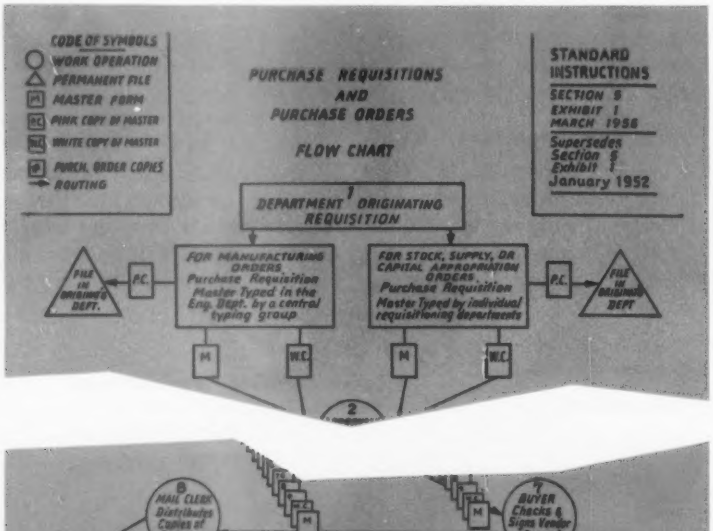
(1) Assign an Arabic numeral to each major section with topics numbered in decimals. For example, the first topic in Section 5 is numbered 5.1, the second 5.2, etc.

(2) A variation of the previous method is to begin numbering the topic headings in the hundred decimal column, such as 5.01, 5.02, etc. This makes it possible to list 99 topics, compared with 9 in the first method.

(3) Another technique is to set aside a block of 100 for each major section. The first topic in the first section would be numbered 101, instead of 100; the first topic in the second section would be numbered 201 instead of 200. In this way, the last digit indicates correct sequence; otherwise, 101 would be the second topic of the first section.

(4) Arrange major subjects alphabetically with related topics numbered consecutively after the letter: A1, A2, A3, etc.

One of the problems in writing

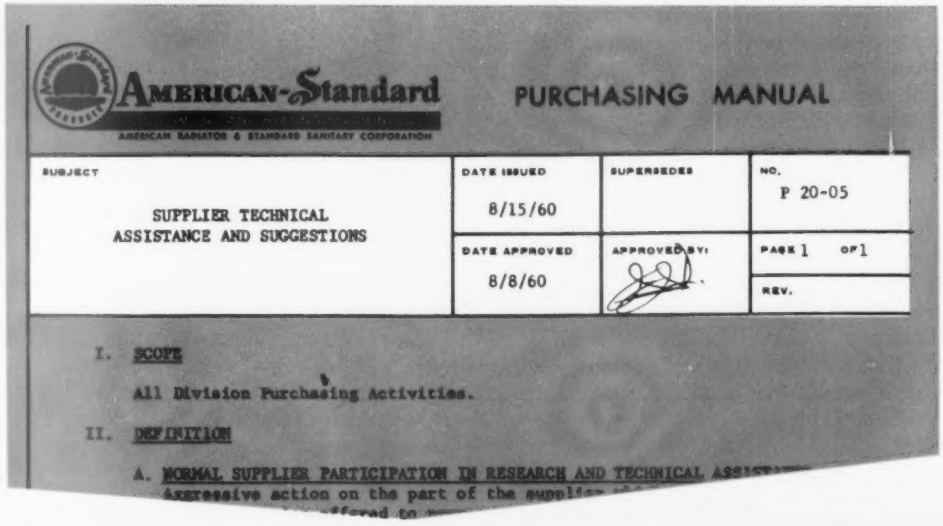






Flow charts are a big help in procedure manuals. A large eastern manufacturer uses this chart to supplement detailed instructions.

Page format of manual should be simple and uncluttered, yet contain all the necessary data. American Standard achieves this goal without sacrificing clarity or visibility.


AMERICAN-Standard

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

PURCHASING MANUAL

| SUBJECT | DATE ISSUED | SUPERSEDES | NO. |
|---|---|---|---|
| SUPPLIER TECHNICAL ASSISTANCE AND SUGGESTIONS | 8/15/60 | | P 20-05 |
| | DATE APPROVED 8/8/60 | APPROVED BY: | PAGE 1 OF 1 |
| | | | REV. |

I. SCOPE

All Division Purchasing Activities.

II. DEFINITION

A. NORMAL SUPPLIER PARTICIPATION IN RESEARCH AND TECHNICAL ASSIST

Aggressive action on the part of the supplier





A manual must be kept up-to-date. Here the buyer's secretary inserts new pages, then makes sure he notes the revisions.

a manual is that too many people feel that since it reflects corporate rather than individual thinking, they have to resort to "corporationsese." The style is passive, impersonal, indirect, and is often made so abstract in an attempt to cover all situations that it really says nothing. Here's an example:

"Whenever personnel outside of the purchasing department come into contact with the representatives of our suppliers, care should be taken to express no preference for any product or source of supply, and information regarding competitive performances, quantity requirements, final approval, or prices must be avoided."

How much easier to say:

"When non-purchasing personnel contact vendors they should not express preferences for product or source of supply. In addition, they should not discuss competitive performance, required quantities, final approval, or price."

A more pointed example of the deadliness of abstractions is this example taken from another purchasing manual:

"The responsibility and authority of the general purchasing agent is to study each item and all conditions surrounding it, and to adjust procedures so as to produce maximum results."

### The Why For 'Corporationese'

This statement is hardly necessary, but if it must be included there's a much simpler way to phrase it:

"The general purchasing agent has the authority to establish any procedure essential to good purchasing performance."

Even a relatively simple statement can be improved by using direct construction. This is cumbersome:

"Responsibility for establishing the company's buying policies and putting them into effect rests directly with the purchasing agent."

Try this instead:

"The purchasing agent is responsible for establishing and carrying out company buying policies."

Knowing why people write in corporationese can help the manual writer avoid this pitfall. There are three important reasons for the popularity of this deadly style:

(1) Taking his cue from the legal profession, the writer tries to make a policy or instruction cover every possible situation, and

(*Please turn to page* 252)

## 10 TIPS ON WRITING A PURCHASING MANUAL

*If you have been assigned the arduous task of writing a purchasing manual, here are a few suggestions that should make the job a little easier and also make your manual more effective.*

**(1) Identify the purpose. (Policy, procedure, vendor relations?)**

**(2) Set definite limits; don't make it a catch-all.**

**(3) Get management backing.**

**(4) Invite cooperation of other departments.**

**(5) Don't write it alone; use purchasing teamwork.**

**(6) Use straightforward, readable language.**

**(7) Organize logically; identify subjects clearly.**

**(8) Explain, don't preach. Make the manual a guide, not a law.**

**(9) Keep it short, or at least no longer than absolutely necessary.**

**(10) Keep it up to date.**

# What Can You Do About Prices?

*Most salesmen are skillful at explaining why they can't cut a price and many buyers are inclined to go along with these explanations. But there are techniques a buyer can use to break down many of these arguments.*

**By K. E. Glasgow,**
Packaging Corp. of America,
Rittman, Ohio

SUPPLIERS' explanations of why they can't reduce prices are varied and ingenious. You've heard them time after time in different forms. The supplier may think that repetition makes them true, but you're not doing your job as a buyer if you think so. It's your responsibility to question every claim that prices can't be cut.

What are some of the basic arguments for holding the line on prices? You'll recognize these samples, I'm sure:

*"Sorry, I can't do a thing about price. The item is shown on our price list and since our list has wide circulation, we have to hold the price to be fair to all our customers."*

*"No, we can't allow you to pick up your orders at our plant with your trucks or contract carrier and allow you the freight. We had to set a policy of no freight-allowed backhauls to keep our pricing fair to all. It is more efficient for us to schedule shipments this way without tying up space or upsetting our IBM system."*

*"We're one of the smaller producers in the field and have to hold the price line. If we didn't and one of the big boys got rough, we would be out of business. Although we probably produce at a lower cost, I'm sure you know how it is."*

*"The reason everyone in our industry has the same prices on like items is that our production and sales costs are about equal."*

*"We don't set the price. We're distributors and have to abide by the prices set by manufacturers. We've even stopped protesting price increases by manufacturers since we're never able to convince them to hold the line."*

Let's look at some of the means a buyer has to counter the suppliers' tactics:

**The Published Price List.** A published price list states the prices a company will charge for the merchandise listed. In many cases, the list price holds—particularly for the casual or low-volume purchaser. But when an article on the price list is sold to a large-volume user, then the list price may be subject to change.

The manufacturing company can legally change the published price when it can show a savings in production, sales or transportation costs, or to meet a competitive situation.

It's up to the buyer and seller to find the areas where savings can be made. And since it's hardly likely that suppliers will volunteer, the buyer must take the initiative. He must negotiate skillfully and aggressively for lower prices on volume purchases or combined purchases. He should know how to use such tools as blanket orders, pooled shipments (with other P.A.'s in his area), and vendor stocking arrangements, to get lowest prices.

**The Freight-Allowed Backhaul.** Companies that operate their own truck fleets or use contract carriers can make big savings by getting payload backhauls for their trucks. A buyer should insist on the privilege whenever it is to his company's advantage.

There are three main reasons why suppliers don't allow pick-ups at their plants: (1) the practice would upset their zone pricing systems; (2) it would alter their shipping schedules; (3) it would lead to cheating by some customers who would claim a freight allowance to the plant farthest away from the vendor's shipping point.

### May Hurt Good Customer

Suppliers may be justified in this attitude, but many overlook the point that a policy against backhauls often penalizes a good customer. The buyer should make

this clear with facts and figures to the supplier who balks at backhauls. He should make it just as clear that he'll look around for another supplier who's willing to permit backhauls to hold his business.

**The Small Producer.** The supplier who holds to the price line because "he's too small to make deals" is often simply not aware of what's going on in his field.

He may not realize that the giants he fears understand the justifiable price concession and will even grant it themselves when it will produce results. The buyer should recognize that there is usually no special significance to a company's size when it comes to price, service, or quality.

Some buyers may want to help the small producer, but they should buy from such a company only when it is competitive. After working with the sales representatives of small producers, the buyer soon realizes whether or not they are worthy of future business.

Small suppliers need prestige accounts and can often find ways of lowering prices for these accounts. The buyer should be alert to this possibility. In addition, small companies may actually have lower productions costs than larger firms, which allow them to make legal price concessions.

**Identical Prices Because of Identical Costs.** This is a hard one to get around, but always remember that the burden of proof is on the vendor who claims he must charge the same as a competitor because his costs are the same. The buyer may be able to recommend changes in manufacture or handling that will bring costs down.

This situation also lends itself to some of the techniques mentioned above: volume buying, blanket orders, etc. Establishing a yearly contract with set monthly releases, for example, could result in a larger order for the supplier, thereby inducing him to cut prices.

**Distributors.** In some instances, distributors, warehouses, and service centers have to abide by the list prices set by the manufacturer or lose the line. In other cases, manufacturers allow distributors a choice in determining the sales price so that they can meet competitive situations in the areas they serve.

Distributors are independent companies which are frequently in the middle between suppliers and purchasing agents. They are pressed by the manufacturer to increase sales while the customer presses for lower prices and other competitive advantages.

Whether or not they are effective in protesting price increases from manufacturers, they should nevertheless take a position against the hike — particularly where it jeopardizes their position with the buyer. Distributors should be constantly reminded of their responsibility to their customers — the people who keep them in business.

### Profit May Vary by 50%

The profit margin in the distributor's quoted prices can vary from 5% to 50% in many instances. A buyer should study the classes of materials purchased from distributors in order to learn which profit percentage applies. He then can consider his current buying position and work for the lowest possible price.

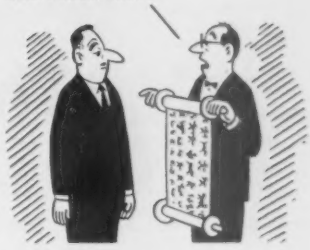
Certain distributors are especially strong in some classes of items. Because of higher volume, they can offer lower prices than their competitors.

Buyers should be alert to such possibilities. By taking bids on common items—such as nuts and bolts—they can easily determine the distributor with favorable prices.

Distributors and commission salesmen will sell as close to list prices as they can. They size up the buyer to see what he will stand without flinching. With a questioning mind and a willingness to negotiate, the buyer can meet the salesman and come off with fair prices. ► END

## Ever Hear These Before?

SORRY. I CAN'T GIVE YOU A BREAK ON THIS ITEM. IT'S ON OUR PRICE LIST.



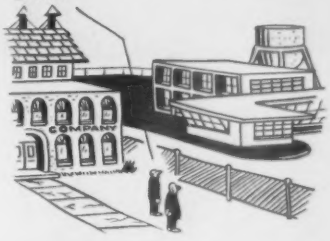
YOU CAN'T PICK UP THE ORDER IN YOUR TRUCK. IT FOULS UP OUR DATA PROCESSING SYSTEM.



YOU SEE WHAT HAPPENS WHEN I START CUTTING PRICES!




OUR PRICES ARE THE SAME BECAUSE OUR COSTS ARE THE SAME.




I DON'T SET THE PRICE. I'M JUST A DISTRIBUTOR.



# Cost Reduction Is The Supplier's Job Too

*Sperry Gyroscope has signed up its vendors as permanent members on its value analysis team. But the arrangement is more than a mere handshaking formality. The program is backed up by top-level participation and vigorous follow-up.*

**By Thomas F. Dillon,**
Associate Editor



Sperry's Director of Purchases Bill Neumann (r.) discusses plans for vendor cost reduction meeting with his assistant, Ward Kelley.

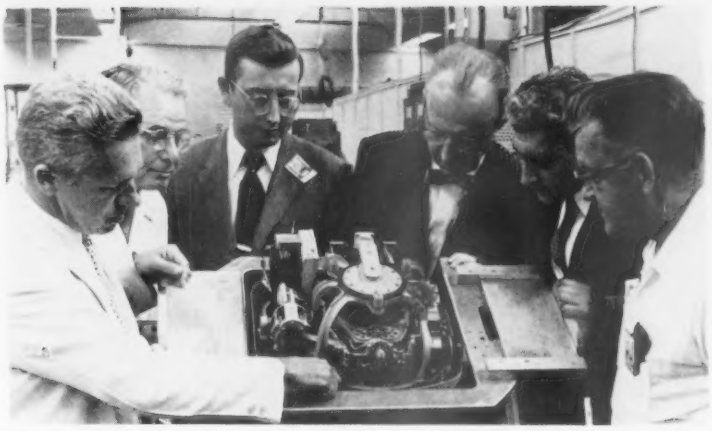
SOME TIME in the next several weeks Bill Neumann will know whether he has hit one of the toughest targets a director of purchases can set for himself—a 15% slash in the annual cost of purchases.

Neumann, head of purchasing for Sperry Gyroscope Company, division of Sperry-Rand Corp., has put an unusually heavy load on his buying team. But the team has an unusually large number of reserves, i.e., thousands of Sperry suppliers.

Sperry "officially" brought its suppliers into the cost reduction project earlier this year at a meeting at its Great Neck, N. Y. plant. Vendors had always been expected to come up with new ideas to cut costs. But this time Sperry's own goals and the part its suppliers were supposed to play in reaching them were spelled out precisely.

The planning, staging, and follow-up of the suppliers meeting typify Neumann's original and thorough approach to purchasing. He viewed it as a key step in Sperry's cost reduction program and made sure it was not just another handshaking buyer-seller affairs that would have no effect on costs (except possibly to raise them slightly.)

To emphasize the importance of the meeting and to encourage



Sperry value anaylsis team examines an APN-59 antenna assembly prior to discussing cost reduction ideas with suppliers. They are, from left, Gene Johnson, product methods engineer; Oscar Denzer, assembly foreman; Guy Hill, product engineer; Karl Stauffer, purchasing agent; Mike Churillo, test engineer and Mike Higgins, process engineer.



Competitive bid review charts and cost reduction suggestions are discussed in the office of Purchasing Agent Karl Stauffer (l.). Team members (l. to r.) are: George Ferris, quality control; John Preuss, chief buyer; Michael Onyskin, manufacturing engineering manager; Albert J. Donnelly, engineering.

attendance by Sperry suppliers, Neumann enlisted the aid of Dr. C. A. Frische, Sperry's president. Dr. Frische wrote personal invitations to presidents of hundreds of Sperry's 8,000 suppliers. He said the meeting would be brief, and suggested they combine it with other business they had in the New York area. More than 550 executives from 27 states attended.

Neumann felt that most cost reduction meetings he had seen put on by other companies failed to hit the mark. Usually they consisted of bringing the vendors together around 10 a.m.; taking them on a plant tour; having them adjourn for a few drinks and a big luncheon; and then practically putting them to sleep in the afternoon with long, statistics-loaded lectures about cost reduction.

Neumann decided his meeting would be different. He boiled his meeting down to two hours, served only light refreshments, and punched the message across in a series of short, to-the-point talks by company officials and also representatives from the defense department.

### Can't Win the Old Way

He set the tone for the meeting in his opening remarks. "In the interests of cutting costs and conserving your time," he said, "we have planned a short but comprehensive program. The Sperry cafeteria is being used and you will note that there are no elaborate and expensive settings for our displays. The trailer we're using outside the building has been used many, many times before. You will find that refreshments consist of coffee, Coke, and cake. You can see, gentlemen, that this meeting was planned with an eye on cost reduction!"

Other speakers were equally to the point. Said Dr. Frische: "No longer can anyone win contracts on the old three-dimensional basis of creative engineering, quality manufacturing and superior service. Today, the fourth requirement—cost—is of equal, perhaps even greater importance. Therefore, we must have more of your help."

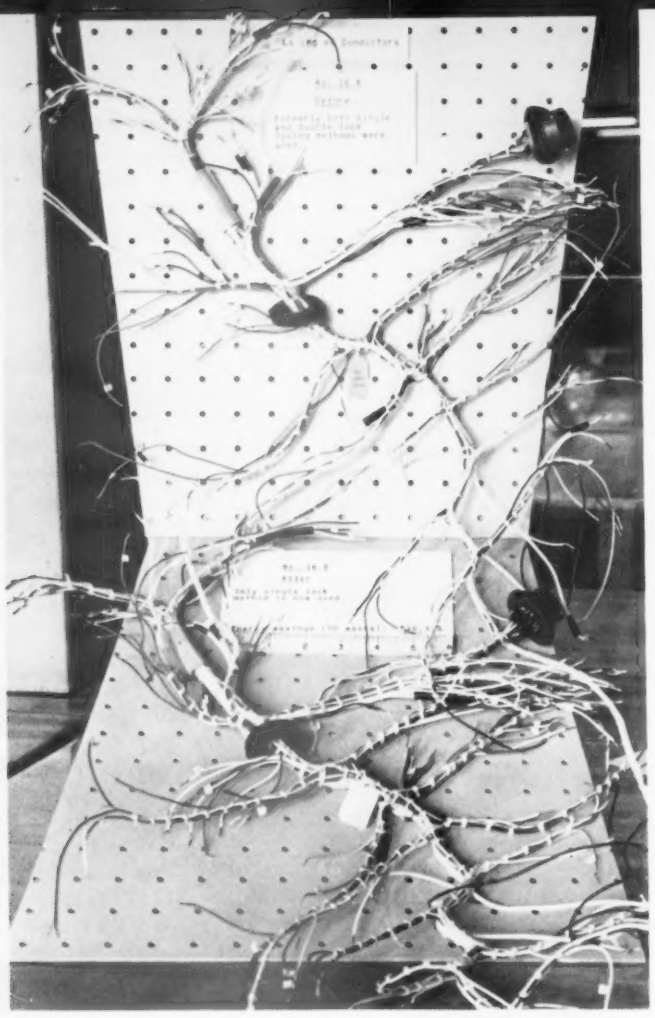
### Cost Reduction: A Way of Life

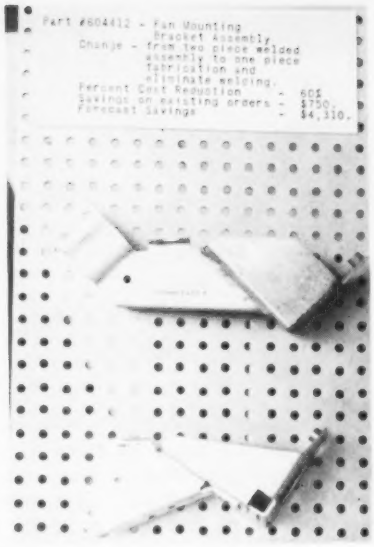
Vice President Edward M. Brown said: "Cost reduction has been, is, and is going to continue to be a way of life with us."

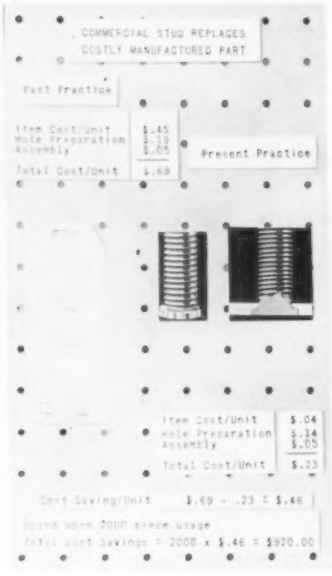
Value Analysis Administrator David Fram said: "Our products have been subjected to the usual product cost reduction committee approach and we got 5% and 10% reductions. Today that's not enough. A well organized value analysis program can give 30% and 40% reductions in cost."

The visitors saw slides of outstanding cost reduction projects that had already saved Sperry hundreds of thousands of dollars. They inspected exhibits of other current or completed value analysis projects.

Supplier reaction was enthusiastic, but Neumann didn't let it cool off once the excitement of the meeting was over. An intensive follow-up program was start-

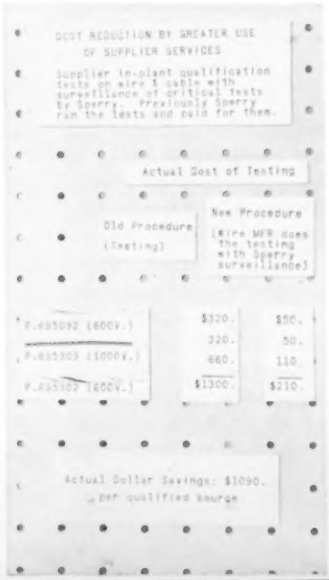


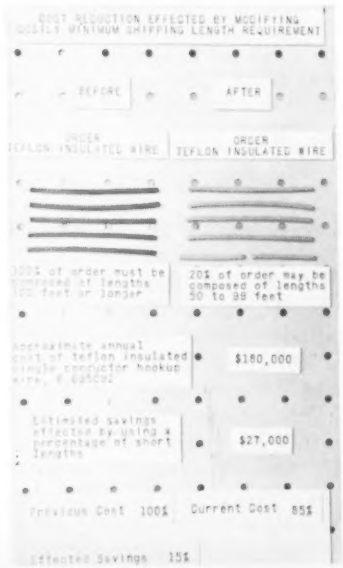


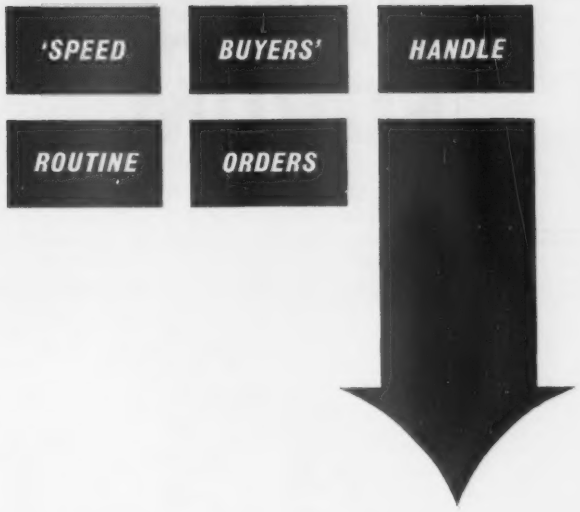




## How Sperry Saves With Value Analysis

*One of the most impressive parts of Sperry's suppliers' meeting was its display of value analysis projects that have saved the company hundreds of thousands of dollars. Representative V.A. case histories illustrated here are self-explanatory. Photo above shows old and new methods of lacing conductors. Formerly both single and double-lock lacing methods were used. By switching to the single-lock method, Sperry has saved over $36,000 a year.*






The thoroughness and originality with which Sperry's Director of Purchases Bill Neumann attacked the cost reduction job (described in this article) is typical of his purchasing operation. He has also experimented successfully with other areas of his department.

One innovation Neumann is particularly proud of is the "Speed Buyer System". In any buying operation, there is a large percentage of routine orders. Placing these orders requires little skill. Why, Neumann asked, should a top level buyer be tied up doing a job like that? His answer is the speed buyer system.

The speed buyer is normally a new buyer or trainee. He places routine orders for the regular buyers. If any question develops in the placement of the order, the speed buyer returns it to the regular buyer for handling.

The speed buyer does not have authority to sign an order. Therefore, all his work is checked by the regular buyer, who maintains full control over the transaction. However, with the speed buyer method, the regular buyer is relieved from routine work and can devote full time to more important purchasing activities.

A speed buyer can place from 40 to 50 orders each day. He never expedites an order or performs any extra functions. Without a speed buyer's help a regular buyer has to handle 20 to 25 orders a day, most of them routine. Now a regular buyer will process fewer, but more important orders which require more of his skill and knowledge.

ed the following day:

—Sperry sent letters, over Dr. Frische's signature, to all suppliers who attended the meeting. Copies of all talks were sent to every Sperry supplier and to all purchasing personnel of the company;

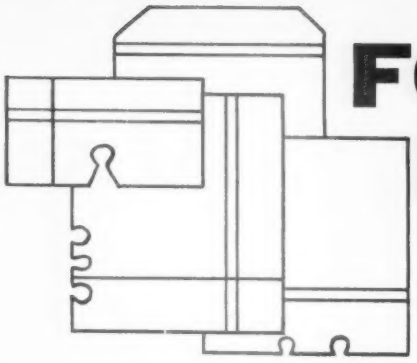
—Buyers intensified their campaign to get suppliers to bring in cost reduction ideas without waiting for Sperry to initiate the action;

—Purchasing began placing stickers on all purchase orders, reminding suppliers of the cost reduction program;

—Purchasing agents in all divisions were ordered to submit monthly reports to the general office purchasing staff on cost reduction ideas offered by suppliers. The staff combines the reports and distributes them throughout the organization;

—Purchasing keeps a "register of cost reduction performance" on every vendor. The vendor's record will be considered when new orders are placed.

Coming into the homestretch, Neuman is optimistic about Sperry's cost reduction program. "We hope we hit our 15% goal," he says, "but even if we don't we've learned some valuable lessons in addition to the very respectable savings we have made. One is that cost reduction through vendor cooperation is not something you kick down to a lower level. It takes top-level effort and cooperation to put over a program. Dr. Frische's participation in our program was the key to our success. We started off by having our top level talk to supplier top level —so the idea got across." ► END



# FORMS FORUM

This article is one of a series illustrating and explaining the use of various purchasing department forms. Watch for Forms Forum and see how your own forms measure up. All forms shown on these pages are from A. M. Wilson, purchasing agent at the Philadelphia branch of National Lead Co.

**PURCHASE ORDER (9½ x 5½) at Philadelphia branch of National Lead has four copies: Original, and copies for receiving department, purchasing department and requisitioner.**

PURCHASE ORDER
NO.

**PURCHASE ORDER**

NATIONAL LEAD COMPANY

**Philadelphia Branch**

2607 E. Cumberland St.

Philadelphia, Penna.

Date

**INVOICES MUST BE IN DUPLICATE PLEASE SHOW PURCHASE ORDER NO.**

| Dept. | Disc. Terms | Freight Terms | Pa. Sales Tax | Dist. No. |
|---|---|---|---|---|
| | | | | |

Ship to: **2545 Aramingo Avenue**
Delivery Location
**Philadelphia 25, Pa.**

**Show the delivery location symbol on pks. & shipping papers.**

NATIONAL LEAD COMPANY
PHILADELPHIA BRANCH

Per
PURCHASING AGENT

SELLER WARRANTS THAT PRODUCTS COVERED BY THIS INVOICE HAVE BEEN PRODUCED IN COMPLIANCE WITH SECTION 12(A) OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED.

IT IS UNDERSTOOD THAT YOU CARRY WORKMAN'S COMPENSATION INSURANCE FOR YOUR EMPLOYEES DOING WORK ON OUR PROPERTY AND THAT YOU WILL SAVE US HARMLESS FROM ANY INJUNCTION, SUIT, LITIGATION, CLAIM, ETC., IN CONNECTION THEREWITH.

PURCHASE ORDER
NO.

**FACTORY REQUISITION**

NATIONAL LEAD COMPANY

**Philadelphia Branch**

2607 E. Cumberland St.

Philadelphia 25, Penna.

Date

| Dept. | Disc. Terms | Freight Terms | Pa. Sales Tax | Dist. No. |
|---|---|---|---|---|
| | | | | |

Ship to: **2545 Aramingo Avenue**
Delivery Location
FOR RAIL SHIPMENTS - LEAVE BLANK
**Philadelphia 25, Pa.**

**Show the delivery location symbol on pks. & shipping papers.**

SIGNED
FOREMAN

APPROVED
SUPERINTENDENT

SPECIAL NOTES: (WILL NOT APPEAR ON PURCHASE ORDERS)

**REQUISITION (9½ x 5½) from engineering department is typed on spirit duplicating master. Purchasing runs off copies on regular purchase order form to eliminate errors in retyping.**

**Total Weights**

Gross lbs.
Tare "
Net lbs.

Tare lbs.
Net lbs.

When goods are to be RETURNED, do not sign, but enter RETURN SLIP and NEW ORDER for replacing goods not wanted.

Received by
Approved
Supt.
Foreman

| ACK | WILL SHIP | BILL PASSED | AMOUNT |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

- ☐ Traffic
- ☐ Metals
- ☐ Oxide
- ☐ Factory Supt.
- ☐ Oil & Resins
- ☐ Engr./Power House
- ☐ Sanitary & Medical
- ☐ O. & R. Lab.
- ☐ Advertising
- ☐ Laboratory
- ☐ Lead Chemicals
- ☐ D. B. Paint Prod.

ITEM NO. _____ ITEM NAME _____ DEPT. _____

SPEC. _____ END USE _____

VENDOR _____ ADDRESS _____ TRADE NAME _____

#1 _____ FRT. TERMS _____

#2 _____ DISC. TERMS _____

#3 _____ PKG. UNIT _____

#4 _____

#5 _____

| ORDER NO. | DATE ORDERED | VENDOR NO. | QUANTITY ORDERED | ACK. DATE | WILL SHIP | QUANTITY BILLED | UNIT PRICE | FRT. PAID | TOTAL INV. DOLLARS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

D-2006-A

**COMMODITY CARD** (8½ x 11) is filed alphabetically by product in purchasing department. Postings are made to this card when order is placed and when invoice is passed for payment.

**TRAVELING REQUISITION** (8½ x 11) used by National Lead in Philadelphia is kept in production department files. It is pulled each time material is requisitioned. Purchasing returns the card to production when order is placed.

1 2 3 4 5 6 7 8 9 10 11 12 MONTH

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 DAYS

LOCATION: _____ PURCHASE REQUISITION

ITEM NO. _____ ITEM NAME _____ DEPT. _____

SPECIF. _____ CHARGE a/c _____

| VENDORS: | NAME | ADDRESS | TERMS | fob | via | PHONE NO. |
|---|---|---|---|---|---|---|
| No. 1 | | | | | | |
| No. 2 | | | | | | |
| No. 3 | | | | | | |
| No. 4 | | | | | | |
| No. 5 | | | | | | |

| | MINIMUM | | | | | | MAXIMUM | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | | | | | | | | | | | | | lead time in weeks |
| QUANTITY | | | | | | | | | | | | | |

REQUISITION RECORD

| DATE TO PURCH. | QUANTITY-UNIT ON HAND | QUANTITY-UNIT WANTED | DATE REQ'D. | DATE RECEIVED | APPROVALS DEPT. | APPROVALS PLANT |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |

PURCHASE RECORD

| DATE ORD. | P.O. NUMBER | VENDOR NO. | ORDERED QUANTITY | ORDERED UNIT | PRICE LIST | PRICE % DISC. | APPRX. SHIP. DATE |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

# Daily Purchase Reports Make Management Planning Easier

*Purchasing's daily commitment reports help Automatic Transportation do a better job of planning cash flow, scheduling production and controlling inventories.*

**By Ted Metaxas,**
Midwestern Editor

PURCHASING commitment reports are much more valuable if they are issued on a current basis, says Purchasing Agent Percy Tremewen. Since he distributes them daily and twice monthly, they are as current as a newspaper at Automatic Transportation Co., Chicago, a division of Yale & Towne.

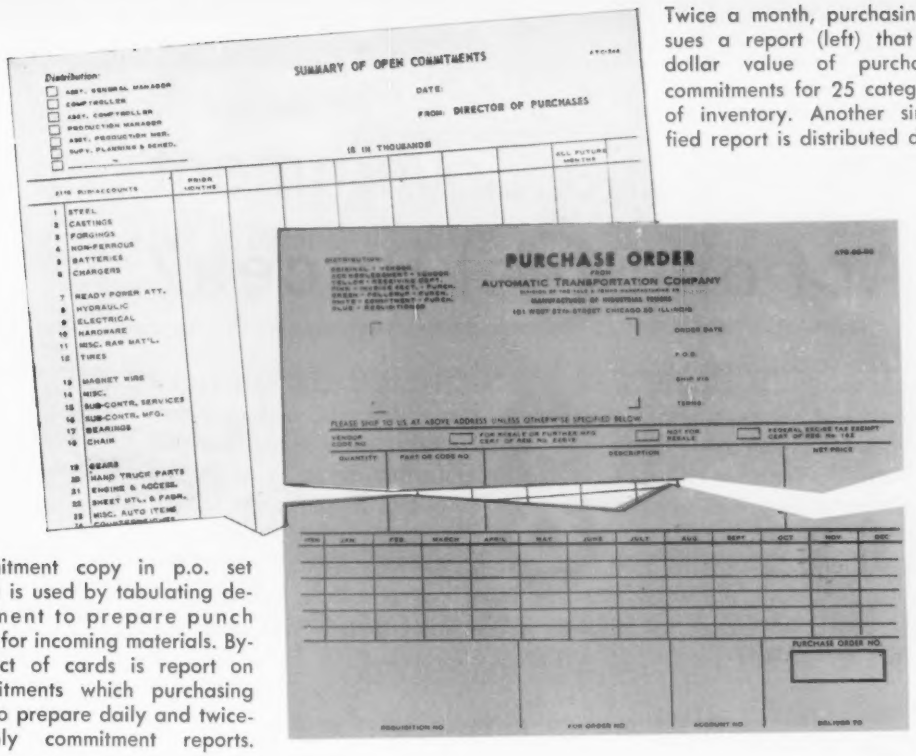
Such live reporting of dollar value of incoming materials makes it possible for purchasing to check adherence to budget and enables the inventory manager to balance commitments against manufacturing forecasts and schedules. In addition the controller can plan ahead on cash flow and management can take a continuing look at inventory trends.

Assisted by Chief Buyer Rex Thomson, Tremewen manages an active department which buys thousands of different parts for hundreds of standard and special models of material handling trucks. Because most trucks are custom built to individual requirements, production runs are often small. Lead time is frequently less than 30 days—though some items are committed months in advance and require updating and revisions as demand trends shift.

Key to Automatic's commitment reporting is a punch-card data processing system. Data comes from the commitment copy in each purchase order set and is based on 25 inventory account numbers for various classes of purchased materials. In addition to account number, purchase order data includes quantity, and scheduled arrival time for each item. This information is noted in monthly columns at the bottom of the order. Using the information appearing on the commitment copy of the p. o., the tabulating department key punches cards for each item, preparing separate cards for different delivery dates. Thus, a part with three delivery dates is given three cards.

Purchasing bases its commitment reports on a monthly report issued by tabulating which lists total commitment of mate-






Twice a month, purchasing issues a report (left) that lists dollar value of purchasing commitments for 25 categories of inventory. Another simplified report is distributed daily.

Commitment copy in p.o. set (right) is used by tabulating department to prepare punch cards for incoming materials. By-product of cards is report on commitments which purchasing uses to prepare daily and twice-monthly commitment reports.

rial scheduled for future delivery and material past due from scheduled delivery dates. Tabulating's report contains the following information:

(1) Open purchase order number—which is reviewed by purchasing and is used by receiving to check arriving shipments.

(2) Sequential part numbers of items on order—which alerts production and material control to the quantity and dollar volume of each item on order.

(3) Inventory account number of materials—which is broken down by month, by account number, by order number, and by part number, furnishing a thorough listing of total dollar volume of commitments for current and future months by individual sub-inventory classification.

## What Daily Report Covers

From this report, purchasing transfers total dollars committed for the 25 inventory account classes to a one-sheet Summary of Open Commitments form, which is circulated twice monthly to management and department heads to keep them informed on buying trends. Shown in thousands of dollars are total purchases for past due, current, and future months.

By clerically updating inventory figures, Automatic issues its daily inventory commitment report which covers the following areas:

(1) Dollar amount of invoices approved for payment for the current day and the cumulative total for the month.

(2) Dollar value of purchase orders placed on the current day and the cumulative total for the month.

(3) Dollar value of orders scheduled for delivery during the current month and the three succeeding months.

Automatic's commitment system not only pays off for purchasing, it's also helping all other departments in the company.

► END

Percy Tremewen, purchasing agent, (right) and Chief Buyer Rex Thomson review details for preparation of daily purchasing commitment report.

# Should the Government Act on Steel Prices?

Just a week ago, wages in the steel industry went up in accordance with last year's contract. Meanwhile, public officials, including the President, have publicly asked the industry not to raise prices. Senator Gore (D., Tenn.) even proposed that the government take over regulation of steel prices, or break the industry up into smaller units unless the status quo in prices is maintained. The survey below, based on a questionnaire sent to 1,000 purchasing executives, was completed shortly before the wage increase went into effect. It reflects purchasing opinion on the general question of government intervention in industry.

1. Are your steel buying plans based on expectation of a price increase this fall?

Yes 16% ■ No 84%

2. Do you think a steel price increase would be justified?

Yes 20% ■ No 80%

3. Do you agree with Senator Gore that Congress should take action to prevent a steel price rise this fall?

Yes 34% ■ No 66%

4. Who, in your opinion, should pass judgment as to what is a "satisfactory rate of profit" for the steel industry?

Congress 16%
The Steel Industry 60%
The Steel Industry's Customers 55%

---

5. Would you like to see more competition in steel?

Yes 73% ■ No 27%

---

6. Do you believe steel users would benefit if the steel industry were:

Broken up into a large number of small rival companies

Yes 33% ■ No 67%

Subject to government price regulation as public utilities are?

Yes 19% ■ No 81%

---

7. If steel prices are raised this fall will you consider:

Switching to competitive materials such as plastics, aluminum, etc.

Yes 55% ■ No 45%

Buying from foreign sources?

Yes 37% ■ No 63%

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# Photocopies Help Streamline Purchasing

USE of a new paperwork system has made it much easier and much less costly to purchase, store and requisition the nearly 2400 stock items used by Minneapolis' Fairview Hospital.

The system, developed by Purchasing Agent Leif Roholt, depends on the Kodak Ektalith method of preparing offset duplicating masters or direct paper copies. It has been in operation over a year and during that time has saved roughly $18,000 by making it possible to consolidate orders and to keep better control over inventories. Clerical work, too, has been reduced 50% through virtual elimination of the purchase order.

Key to the success of the new system was establishment of a standard classification code. Standard nomenclature and specifications were developed by P. A. Roholt after a series of meetings with other department heads. He divided the 2400 stock items into 40 different classifications, with each item being coded by Fairview for perpetual inventory control and for its location in one of the four storage rooms.

## Consolidate Orders

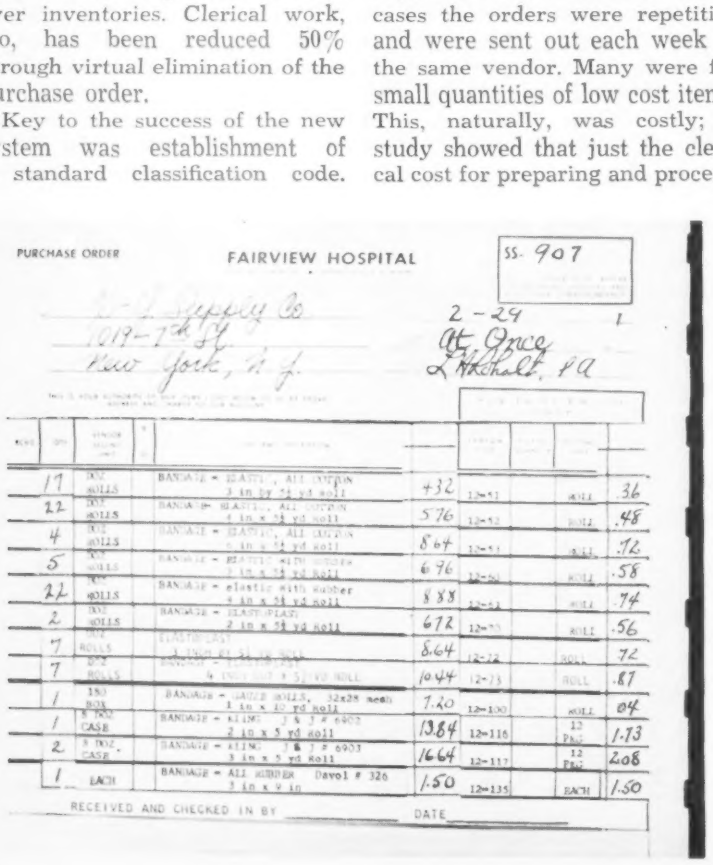
Prior to the new system Fairview had been placing 4000 orders a year for stock items. In many cases the orders were repetitive and were sent out each week to the same vendor. Many were for small quantities of low cost items. This, naturally, was costly; a study showed that just the clerical cost for preparing and processing each order came to $5.

In searching for ways to reduce this cost, Roholt made an intensive study of the purchase records of supply items in each of the 40 classifications. In many instances he found the dollar volume of the orders was substantial. For example, paper cups, towels, bags, napkins, etc., alone totaled about $24,000 a year.

Obviously a lot could be saved by consolidating purchases of this type. Roholt began to group his orders for specific periods, using past consumption as a guide for order quantities. In this way, he was able to reduce the number of purchase orders issued from the large volume sent out when each item was ordered individually as stock reached a low point.

With the new system, all items purchased from the same source are broken down by classification. The standard description and specification of the item is typed on an Acme Flexoline strip. Vendor code, classification code, and posting unit are also included. The strips are then inserted in special metal frames which are held together like a book. They are kept up-to-date by slipping in strips for new items and removing strips for items no longer stocked.

To prepare report forms or inventory work sheets a form overlay is used with each frame. From this a photocopy is made on the Kodak machine. If purchases are


PURCHASE ORDER

FAIRVIEW HOSPITAL

SS. 907

2-24

At Once

L. Roholt, PA

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17 | DOZ ROLLS | BANDAGE - ELASTIC, ALL COTTON 3 in by 5 yd roll | 432 | 12-51 | | ROLL | .36 |
| 22 | DOZ ROLLS | BANDAGE - ELASTIC, ALL COTTON 4 in x 5 yd roll | 576 | 12-52 | | ROLL | .48 |
| 4 | DOZ ROLLS | BANDAGE - ELASTIC, ALL COTTON 6 in x 5 yd roll | 864 | 12-53 | | ROLL | .72 |
| 5 | DOZ ROLLS | BANDAGE - ELASTIC with rubber 3 in x 5 yd roll | 676 | 12-60 | | ROLL | .58 |
| 22 | DOZ ROLLS | BANDAGE - elastic with rubber 4 in x 5 yd roll | 888 | 12-61 | | ROLL | .74 |
| 2 | DOZ ROLLS | BANDAGE - ELASTIC PLAST 2 in x 5 yd roll | 672 | 12-71 | | ROLL | .56 |
| 7 | ROLLS | ELASTIC PLAST 3 inch x 5 yd roll | 864 | 12-72 | | ROLL | .72 |
| 7 | DOZ ROLLS | ELASTIC PLAST 4 inch x 5 yd roll | 1044 | 12-73 | | ROLL | .87 |
| 1 | 250 BOX | BANDAGE - GAUZE ROLLS, 32x28 mesh 3 in x 10 yd roll | 720 | 12-100 | | ROLL | .04 |
| 1 | 5 DOZ CASE | BANDAGE - KLING 3 in x 5 yd roll | 1384 | 12-116 | | 12 PAC | 1.73 |
| 2 | 5 DOZ CASE | BANDAGE - KLING 3 in x 5 yd roll | 1664 | 12-117 | | 12 PAC | 2.08 |
| 1 | EACH | BANDAGE - ELASTIC RUBBER Davol # 326 3 in x 9 in | 150 | 12-135 | | EACH | 1.50 |

RECEIVED AND CHECKED IN BY _____ DATE _____

Purchase order heading is placed over frame from inventory "book" and nine photocopies are made. This system has virtually eliminated purchase order writing.

to be made on a quarterly basis, four work sheets are prepared; if orders are placed on a monthly basis, 12 work sheets are made.

### Give Vendors Two Copies

At the proper time, the inventory clerk pulls the photocopy from the file and adds the following information: stock on hand, amount issued over the past 12 months, and the basic unit cost. From this data purchasing determines the order quantity.

The next step in the system is preparation of bid forms. Strips for items to be ordered are mounted in another frame over which three overlays are placed to make a single form. One overlay is for information to be filled in by the bidder; a second bears the notation "Please quote on the following"; and a third shows the quantities.

Two copies are made for each vendor. One is for his files while the other is returned to Fairview. When the bid forms are returned they are analyzed and a purchase order is issued.

### Group Items on P. O.

Preparation of the purchase order itself is quick and easy. The frame and strips used to make the bid form copies are overlayed with a filled-in purchase order heading. Other overlays provide vendor unit prices, unit costs and space for receiving clerk notations. Usually nine photocopies are made.



Leif Roholt, purchasing agent at Fairview Hospital in Minneapolis, developed an ordering system which is saving $18,000 a year.

As a result of new paperwork procedure many small volume items are now included in one purchase order and get the same discount as large volume items on the same order. This single feature alone has cut costs markedly.

### Pre-Print Requisition Forms

Because of the specialized nature of medical supplies some items can only be obtained from a single supplier. When inventory control shows a low stock point on such items, all other supplies purchased from the vendor are reviewed to see if more items can be incorporated in the order.

Roholt has his book of strips and frames organized according to their use by each of the hospital departments. This makes it possible for purchasing to prepare pre-printed, departmentalized requisition forms. Standard names and special code numbers for all items used by a department are typed on strips along with a listing of the anticipated usage of the item for a given period. The strips are then inserted in the frames. An order quantity column is provided as well as a column for price. Finally, offset duplicating masters are made from the frames. Requisition sets often run from 4 to 13 pages, and 50 to 75 copies are offset for each department — normally a year's supply. Naturally, Fairview department heads find the pre-printed requisition a great time-saver and, of course, it helps ease purchasing's job. ► END

2/28/61 — STEP No 1 - Report from Perpetual Inventory Control and Analysis.

| RCV | QTY | VENDOR UNIT | ITEM AND DESCRIPTION | MIN. U. PRICE | FVN. CODE | POST QTY | POST UNIT | FVN U COST | ON HAND | ISSUED 12 MOS | 6 MOS SUPPLY | LESS O/HAND | LESS O/ORDER | ORDER QUAN | ORDER UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DOZ ROLLS | BANDAGE - ELASTIC, ALL COTTON 2 in x 5½ yd Roll | | 12-50 | | ROLL | 27 | 128 | 0 | 0 | 128 | 0 | 0 | Roll |
| | | DOZ ROLLS | BANDAGE - ELASTIC, ALL COTTON 3 in by 5½ yd Roll | | 12-51 | ✓ | ROLL | 37 | 192 | 791 | 396 | 492 | | 204 | " |
| | | DOZ ROLLS | BANDAGE- ELASTIC, ALL COTTON 4 in x 5½ yd Roll | | 12-52 | ✓ | ROLL | 48 | 122 | 764 | 382 | 122 | | 260 | " |
| | | DOZ ROLLS | BANDAGE - ELASTIC, ALL COTTON 6 in x 5½ yd Roll | | 12-53 | | ROLL | 73 | 66 | 230 | 115 | 66 | | 47 | " |
| | | DOZ ROLLS | BANDAGE - ELASTIC, ALL COTTON 8 in x 5½ yd Roll | | 12-54 | | ROLL | 91 | 12 | 9 | 4½ | 12 | | 0 | " |
| | | DOZ ROLLS | BANDAGE - ELASTIC WITH RUBBER 3 in x 5½ yd Roll | | 12-60 | ✓ | ROLL | 58 | 72 | 247 | 123 | 72 | | 51 | " |
| | | DOZ ROLLS | BANDAGE - elastic With Rubber 4 in x 5½ yd Roll | | 12-61 | ✓ | ROLL | 74 | 87 | 677 | 339 | 87 | | 252 | " |
| | | DOZ ROLLS | BANDAGE - ELASTIC WITH RUBBER 6 in x 5½ yd Roll | | 12-62 | | ROLL | 103 | 24 | 38 | 19 | 24 | | 0 | " |
| | | DOZ ROLLS | BANDAGE - ELASTOPLAST 2 in x 5½ yd Roll | | 12-70 | ✓ | ROLL | 56 | 60 | 156 | 78 | 60 | | 18 | " |
| | | DOZ ROLLS | ELASTOPLAST 3 INCH BY 5½ YD ROLL | | 12-72 | ✓ | ROLL | 73 | 60 | 291 | 146 | 60 | | 86 | " |
| | | DOZ ROLLS | BANDAGE - ELASTOPLAST 2 1/2 in by 5 1/2 yd Roll | | 12-71 | | ROLL | 69 | 30 | 0 | 0 | 30 | | 0 | " |
| | | DOZ | ELASTOPLAST ROLL | | 12-73 | | | | | | 168 | 84 | | 84 | " |

Data from completed inventory worksheet is used by Purchasing Agent Roholt to determine ordering quantities and to issue requests for quotation.

# Recent Decisions in Purchasing Law



By Albert Woodruff Gray,
Legal Editor

## Refusal to Trade Is a Restricted Right

Within a month after the U. S. Supreme Court had sustained an order of the Federal Trade Commission that the Simplicity Pattern Co. cease and desist from discriminating in favor of its larger customers, a small retail dealer in yardgoods and notions sued the pattern company. Claiming that he had been damaged by these discriminatory acts, he asked for three times the damages suffered, under the provisions of the antitrust laws.

According to those statutes, "It shall be unlawful for any person to discriminate in favor of one purchaser against another purchaser or purchasers of a commodity bought for resale, with or without processing, or by contributing to the furnishing of any services or facilities connected with the processing, handling, sale or offering for sale of such commodity so purchased upon terms not accorded to all purchasers on proportionably equal terms."

This is supplemented by the further provision that, "Any person who shall be injured in his business or property by anything forbidden in the antitrust laws may sue therefor in any District Court of the United States in the district in which the defendant resides or is found or has an agent, without respect to the amount in controversy, and shall recover threefold the damages by him sustained and the cost of suit including a reasonable attorney's fee."

Soon other customers of the pattern manufacturer, one by one, joined in the prosecution until forty three dealers were parties to the controversy.

These small retail stores comprised 82% of the pattern manufacturer's customers but accounted for only 30% of its sales volume. As each of the dealers joined the action, the pattern company promptly cancelled their contracts.

Defense of the pattern manufacturer rested on a statement of law made by the United States Supreme Court over forty years ago. "In the absence of any purpose to create or maintain a monopoly the (Sherman) Act does not restrict the long recognized right of trader or manufacturer engaged in an entirely private business, freely to exercise his own independent decision as to the parties with whom he may deal."

In its recent decision forbidding the pattern manufacturer to cancel its contracts, the court said:

"The right of an individual trader to determine in his own discretion with whom he may or may not deal is by no means untrammeled." When the manufacturer's actions, as here, go beyond a mere announcement of his policy and simple refusal to deal and he employs other means which effect adherence to his resale prices this contravailing consideration is not present and therefore he has put together a combination in violation of the Sherman Act."

*Husserl, Inc. v. Simplicity Pattern Co., (C.C.H.) 1961 Tr. Cas. 77,684, Feb. 8, 1961*

## Contract Governs Place of Arbitration

A contract for the construction of an oil refinery in Puerto Rico for the Commonwealth Oil Refining Co. by the Lummus Company, contained the clause, "Any controversy or claim arising out of or relating to this agreement shall be settled by arbitration. The arbitration shall be held in New York, U.S.A."

Under this agreement the contractor undertook to design and build the refinery at a maximum

cost of approximately $35,000,000. When the refining company withheld $2,500,000 of this sum, the contractor demanded arbitration. Four days later the refinery brought suit in Puerto Rico for $60,000,000 damages for fraud in making this contract.

In the meantime another suit had been brought by the contractor in New York State to compel the arbitration of this controversy.

In its action in Puerto Rico the refinery charged that the contractor had given directions and advice with reckless indifference to their truth or falsity in refining economy on which the refining company had relied and had been induced through such false and reckless statements to enter into this construction contract to its damage.

The federal court in Puerto Rico stayed the contractor from proceeding with the arbitration of these claims and from the prosecution of its action in New York. When the contractor appealed this order which denied the right to arbitrate the controversey in the New York action according to the terms of the agreement, the federal court said:

"We think it clear that New York law must govern. Not only were the agreements made in New York but the agreements to arbitrate were to be performed there. Other substantial contacts with New York include the negotiation of the agreements there and the fact that at the time the contracts were made both parties maintained their principal executive offices there.

"Additionally, both contracts contained clauses stating that the contracts 'shall be deemed to have been made, executed and delivered in New York,' a factor which indicates a choice of law by the parties themselves as does the provision for arbitration in New York."

*Lummus Co. v. Commonwealth Oil Refining Co., 280 Fed. 2d 915, June 16, 1960*




"One entering a field of endeavour already occupied by another, should in the selection of a trade-mark or trade name keep far enough away to avoid all possible confusion."

## The Law on Trade Names

Recently the federal appellate court prohibited the producer of "Valcream" hair dressing to use that trade-mark on the ground that it infringes the registered trade-mark "Brylcreem." Vaseline hair tonic was first marketed by the manufacturers of Valcream in 1914, but the trade name was not applied until 1956.

In 1942 the manufacturers of Brylcreem had begun to market their product in the United States and Canada. Fourteen years later the manufacturer of the vaseline hair tonic of 1914, undoubtedly influenced by the popularity of the product of their competitor, inaugurated a selling campaign of Valcream.

Holding such marketing methods to be unfair competition as well as trade-mark infringement, the court asserted: "One entering a field of endeavor already occupied by another, should in the selection of a trade-mark or trade name keep far enough away to avoid all possible confusion.

"It is permissible in the American competitive economy for the second comer to endeavor to capture as much of the first comer's market as he can. He must do this however, by giving his product a name and dress descriptive

(*Please turn to page* 260)




When a contract states that arbitration shall take place at a particular place, it indicates a choice of law by the parties themselves.

# Purchasing Controls Returns

*Paperwork involved in returning defective goods to vendors often is a problem for purchasing. Here's how one company set up a simple system that assures complete control of all return shipments.*

DEBIT AND SHIPPING MEMORANDUM — PURCHASING — LETTER

DEBIT AND SHIPPING MEMORANDUM — ACCOUNTING

DEBIT AND SHIPPING MEMORANDUM — PACKING SLIP

DEBIT AND SHIPPING MEMORANDUM — PURCHASING — NUMERICAL

DEBIT AND SHIPPING MEMORANDUM — ORIGINAL

**ACUSHNET PROCESS COMPANY**
POST OFFICE BOX 916, NEW BEDFORD, MASSACHUSETTS

**MEMO** CRH 1

POSTMASTER: Merchandise. May be opened for postal inspection if necessary. RETURN POSTAGE GUARANTEED.

EXAMPLE

DATE June 1 19 61

Weight lbs.

No. of Ctns.

Package Nos.

TO John Doe Company
America Lane
Heart City, America

| PURCH. ORDER NO. | YOUR INVOICE NO. | ACCOUNT NO. | DATE SHIPPED | SHIPPING INSTRUCTIONS | CHARGES | SHIPPED VIA |
|---|---|---|---|---|---|---|
| #123 | 123456 | 4333 | | | | |

| QUANTITY | DESCRIPTION | PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|
| | Billed:- | | | |
| 35 | #145 Aluminum liners | $1.00 ea. | | $35.00 |
| | Should have been:- | .75 ea. | | 26.25 |
| | | | Difference | $ 8.75 |

**NOTICE:** This memo issued for the purpose of controlling material. Please issue your Credit Memo.

ACUSHNET PROCESS COMPANY
W. D. Roemer, Director of Purchases
By Charles R. Hinkley
CHARLES R. HINKLEY, P.A.

Acushnet's 5-part debit and shipping memo is prepared in purchasing and contains all the necessary information for control of all returns to vendors.

# With Debit Memos

By Charles A. Hinkley, P.A., Acushnet Process Co.

RETURNING goods to a supplier is a purchasing job. It follows, then, that the paperwork involved in these returns should be handled in purchasing.

Nevertheless, many companies still use their sales orders to handle return transactions. Because they don't want to create additional forms, they deprive purchasing of its proper authority and responsibility in this vital area.

The use of sales orders for returns, however, is extremely awkward. At Acushnet Process Company, we formerly used this system and found that it created many more problems than an additional form would.

In our old system, purchasing used to send an inter-works note to the order department requesting that an order be entered to return material to vndors. The note had to indicate whether the items were to be charged at the price invoiced and whether there were to be any additional charges for transportation.

### Memo Has Three Purposes

We found that all departments concerned did not get copies of the return order. Departments that were supposed to follow through on certain projects couldn't do their job because of poor communication.

In some cases, the goods to be returned were sent to the shipping department without the necessary shipping papers. In other cases, the shipping papers arrived at the dock before the material.

These difficulties led us to develop our "debit and shipping memorandum" (see cut). The form we chose was designed to simulate our purchase order.

The debit and shipping memo is used for three purposes. First, we use it to act as authorization to return: (A) defective material, (B) incorrect material or material not up to specifications, and (C) supplier's containers. In all of these instances, the goods are charged back to the vendor at the invoice cost plus incoming transportation when the fault lies with him.

### How Systems Work

The memo is also used as authority to ship certain items such as samples, goods to be repaired, or material that has been loaned.

Finally, we use it as a debit charge to the supplier to offset unauthorized invoice charges or to offset invoice overcharges because of:

(1) Incorrect unit cost
(2) Difference in quantity
(3) Incorrect extensions

Here's how our system now operates: a clerk in the purchasing department types in the required information on a five-part debit and shipping memo including the unit cost. This cost is omitted when we ship samples, goods to be repaired, or materials that have been loaned. In these cases, notations such as "our property," "their property," or "no charge" are substituted in the column headed "Price."

The clerk sends the last three carbons to shipping or to the area where the goods are located. In the latter case, the foreman of the department where the material is located then forwards it with the three parts to the shipping department.

The original and the first carbon are kept in purchasing in an open file. Every Monday, memos still in this file are expedited to insure prompt processing and shipping of goods.

### Check the Information

In shipping, a clerk packages and addresses the material to be sent to a supplier and includes the white packing slip carbon of the memo along with it. He also fills in the pertinent shipping data on the remaining two carbons and returns them to purchasing.

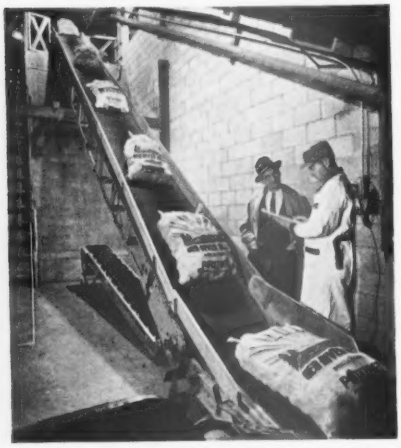
When the purchasing clerk gets these carbons, she makes a quick check to make sure that all the required information has been entered. Then she removes the two copies from her open file, transfers the shipping data on to them, and calculates the extentions.

At this point, the original blue copy is sent to the supplier. Two of the remaining carbons are kept in purchasing—the white in the numerical file and the green in the alphabetical file—and the third is routed to accounts payable.

With this system, there's no doubt that purchasing controls the entire process of returning materials. Any change in the supplier's invoice has to be approved by an authorized signature in purchasing. Purchasing is the only contact with the vendor both for the original purchase and returns or credits. ► END



**Baggage beats passengers.** Conveyor belts rush luggage to the claim area in modern air terminals often faster than passengers can get in to pick it up. Special BFG belts carry luggage surely, safely, on the level, up and down inclines, around 180° spiral turns.



**Fastest way to "raise" potatoes,** according to a Nebraska food processor, is with this BFG belt. It's made with parallel ribs of rubber, cross cut into thousands of soft, flexible grip blocks. These rubber "fingers" hold the sacks firmly in place as the belt runs swiftly upstairs.



**Rocks and clay race down a mountain** at a 3000-ton-an-hour clip. They're the makings for California's Trinity Dam. Carrying heavy loads like this once required a series of many short-length conveyor belts. But extra-strong BFG belts span the two miles in just a few long flights.

# Look how B.F.Goodrich makes hard-to-handle stuff go lickety-split

**THIS PIER** needed a conveyor belt to whisk iron ore at 2000 tons an hour from shipside to railroad cars.

The answer was a special belt built by B.F.Goodrich. Now more than 10 million tons old, it shows hardly any wear. One reason is extra rubber in the center to bear crunching loads that sometimes include 2-foot boulders. Having a belt with plenty of "get up and go" makes it possible to unload the largest ships in just a few hours.

Fact is BFG has developed belts to carry just about everything imaginable. Some kinds haul hot material. Some carry oil-soaked parts. Others are made especially for food products. Some are made to carry things up steep inclines without backsliding. What they all have in common is this. They save money because they're engineered for the job to be done.

If you want to get more lickety-split into your materials-handling, see what B.F.Goodrich has to offer. Any one of our industrial distributors can tell you about the conveyor belts we make, what you can expect from each, help you decide which is your best buy. For more information about any product B.F.Goodrich makes for industry, write *B.F.Goodrich Industrial Products Co., Dept. M-138, Akron 18, Ohio.*

**B.F.Goodrich**


ENDURO
Photo arrangements courtesy B. & O. Railroad

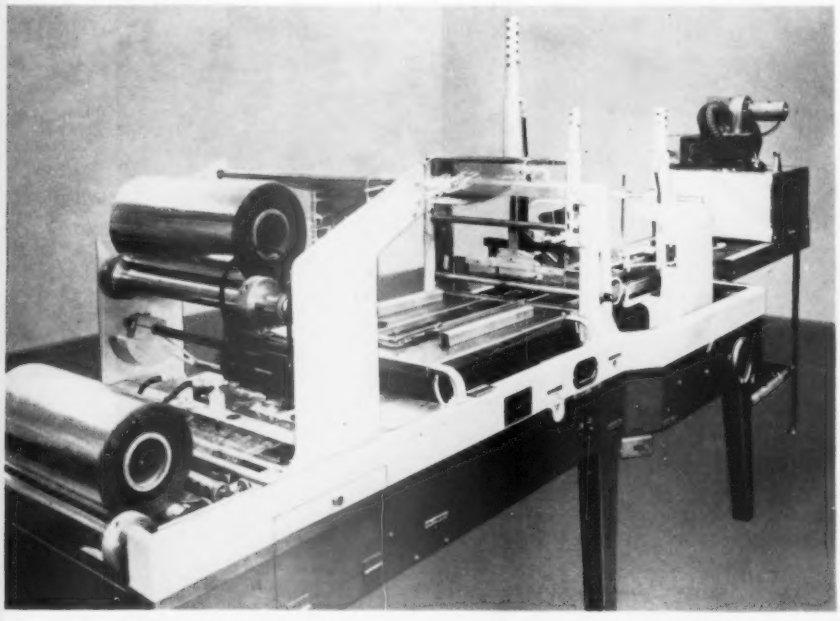
# Automatic Machine Cuts Cost Of Film Packaging

A HIGH-SPEED packaging machine that encases a product or package in skin-tight film can be used to wrap almost anything, from small tools and electronic parts to food and drugs.

The new machine, Versapak, developed and marketed by the Versapak Film and Machinery Corp. of New York, overwraps products with shrinkable film at speeds up to 2000 units per hour. This is at least four times as fast as conventional film packaging systems. The machine promises to cut film costs 15% to 20% below blister packaging and 50% below preformed bags or sheets.

Because the process uses the shrink properties of polyvinyl or polypropylene films, the size of the film wrap is not critical. For this reason, the machine does not require expensive controls or complex guide systems. The resulting economies are reflected in its price, which runs from $6000 to $7500 depending on attachments.

The Versapak is a fully automatic machine. Once the product is placed on the delivery station, either manually or by automatic feed from a production line, the machine pushes it through the preformed film curtain to the first sealing station. At this point, the ends are welded and the film is cut to size. Without stopping, the package then moves to the second sealing station, where the sides are sealed and trimmed.



Versatile packaging machine uses shrinkable film to cover a wide variety of products in skin-tight transparent wrapping. Fully automatic and operating at speeds up to 2000 units per hour, the machine can wrap anything from small industrial parts to consumer products.

### Follows Every Contour

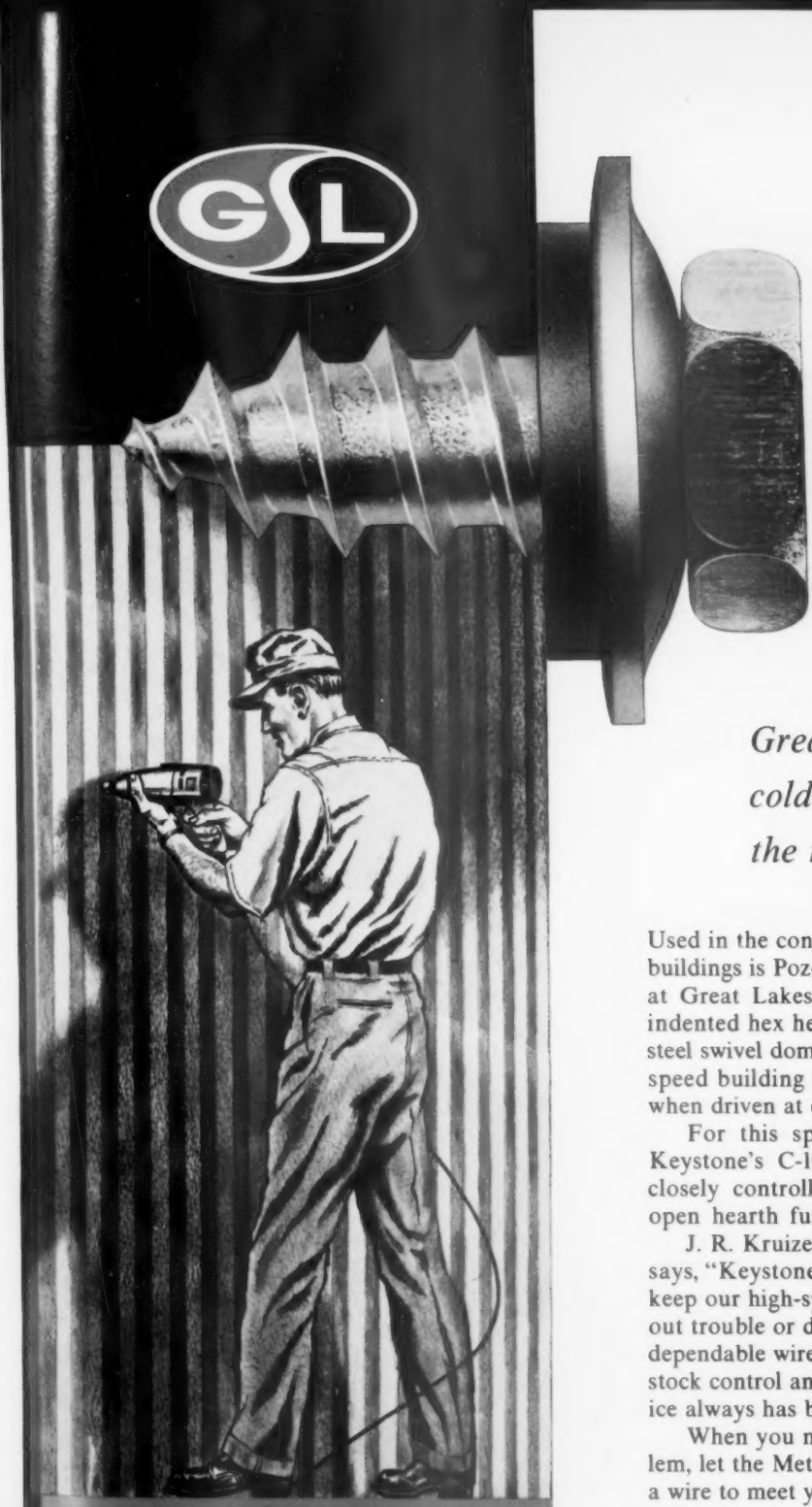
Now loosely wrapped in film sealed around the perimeter, the item continues into the shrink oven. It emerges four seconds later with the film skin-tight, following every contour of the package without wrinkles, visible seams, or underfolds.

Designed for simplicity of operation, the machine is easily loaded with film rolls. They do not have to be locked in place with chucks or mandrels, but are merely placed on rotating cylindrical rollers which feed film as needed. Rolls are easily changed from one size to another or to renew the film supply.

Package size adjustments can be made by the operator. As the guide pieces are held to the feed table magnetically, they are moved to fit the size of the package. Height clearance is adjusted by resetting three stops. The machine can handle packages up to 12 inches square and 4 inches thick, regardless of shape or configuration.

Tunnel transport speed is adjustable to ensure a perfect wrap. There is little or no heat transfer to the product. In fact, the package can be picked up by hand without discomfort the moment it comes out of the shrink oven.

Write No. 19 on Information Card—Last Page




# KEYSTONE WIRE SPEEDS METAL BUILDING ERECTION

*Great Lakes Screw Corp. cold heads* **Poz-i-seal**®, *the moisture sealing fastener*

Used in the construction of industrial fabricated metal buildings is Poz-i-seal, a sheet metal fastener developed at Great Lakes Screw Corp., Chicago, Ill. It has an indented hex head with Type A point and a hardened steel swivel dome washer, plus rubber seal. Designed to speed building erection, it provides positive seal even when driven at extreme angles.

For this special fastener Great Lakes specifies Keystone's C-1018 Direct Drawn Wire made under closely controlled manufacturing procedures — from open hearth furnace to finished wire.

J. R. Kruizenga, Vice President in Charge of Sales, says, "Keystone Wire flowability and uniform quality keep our high-speed heading machines operating without trouble or delay. Keystone Steel & Wire Company dependable wire deliveries help us maintain an efficient stock control and continuous operation. Keystone service always has been excellent."

When you need a solution to a wire forming problem, let the Metallurgists at Keystone help you develop a wire to meet your most exacting specifications.

*Keystone Steel & Wire Company, Peoria, Illinois*




**KEYSTONE**

WIRE FOR INDUSTRY

MADE AT PEORIA, ILLINOIS, U.S.A.

MICRO SWITCH Precision Switches

# SWITCH EXPERIENCE ...IN DEPTH

You can recommend MICRO SWITCH to your engineering and production men with confidence. As the most complete source for small snap-action and mercury switches, MICRO SWITCH has designed nearly 16,000 different precision switch variations. They undergo tests that duplicate exactly the environment and operating conditions under which they must work in your plant or on your product. Other quality checks safeguard precision and reliability. Whether you're up-dating your present machines or designing new ones, you'll find just the switch you're looking for in the MICRO SWITCH line.



"Plug-in Limit" Switches



Subminiatures and Sub-Subminiatures



Enclosed Industrial Switches



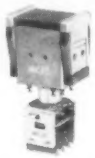
Mercury Switches



Small Basic Switches



Explosion-Proof Switches



Push-Button Switches

**Switch help when and where you need it!**

**Call your nearby Branch office.** It will save you valuable time in switch selection. MICRO SWITCH field offices in 28 principal cities are staffed with experienced factory trained sales engineers who spend their full time assisting customers on switching problems. These switch specialists can help you.

**Largest switch stock available.** MICRO SWITCH carries hundreds of different switch types in stock. Hundreds of others are readily available. If necessary, special switches will be designed to meet your exact requirements.

**Local distributors simplify replacement.** There's a MICRO SWITCH Distributor close to your plant. He provides regular switch service and can avoid downtime when replacements are needed by shipping from his own stock.

**Descriptive catalogs for your file.** Complete catalogs, covering the switch categories shown on this page, are available. Write for free copies on the types you buy most regularly.

MICRO SWITCH . . . FREEPORT, ILLINOIS . . . A division of Honeywell
*In Canada: Honeywell Controls, Limited, Toronto 17, Ontario*

Honeywell
MICRO SWITCH Precision Switches
For More Facts Write No. 199 on Information Card—Last Page

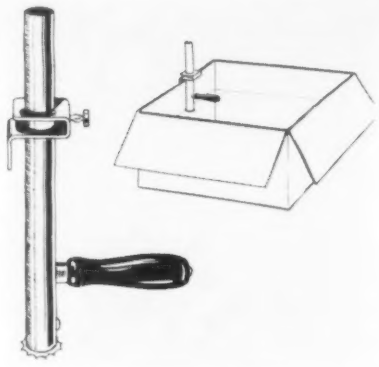
## Products

### "Off-the-Shelf" Building Gives Quick Occupancy



An industrial steel building which is assembled from off-the-shelf components features easy erection and occupancy in a few days' time. Building uses pre-engineered sections that can be fitted together to form wide variety of types and sizes. It is delivered to site as complete package, with siding, roofing, doors, windows and hardware included. No special foundations are needed. Building heights available are 12, 14, and 16 ft. Widths run from 30 to 80 ft., in 10 ft. increments. Sidewalls can be of any material—steel, glass, brick or stone. **Republic Steel Corp., 1315 Albert St., Youngstown 1, Ohio.**
Write No. 20 on Information Card—Last Page

### Hand Tool Solves Shipping Room Problem



A hand tool developed to solve a common shipping room problem quickly and efficiently reduces the size of a corrugated shipping carton which may be too large for

(*Please turn to page* 110)




## Dow creates new chemicals to solve customers' problems

Bedeviled by knotty production problems? Faced with rising maintenance costs? Stumped in new-product developments? Put your problems up to Dow. We're geared to move, industry wide, to help you find a solution. For example:

**No fire or flash point.** Some cold-cleaning solvents burn at the drop of a spark . . . are so toxic they require special precautions . . . or so unstable they attack sensitive metal. To lick these problems, Dow developed a new solvent, Chlorothene® NU. It is less toxic than most chlorinated solvents, can be safely used on most common metals, and has no fire or flash point measurable by standard methods.

**24-hour power.** Stationary engines that supply power must run around the clock. Down time due to freezing, overheating or clogging cannot be tolerated. Ambitrol* FL, new chemically balanced Dow coolant, keeps engines running clean in nearly any clime, as no combination of antifreeze and water can.

**Foam from a gun.** Insulation once had to be cut and fitted by hand. Recently Dow created its family of Vorane® urethane chemicals. Now low-cost rigid urethanes can be foamed in place or sprayed on a surface right in production. They insulate, deaden sound, prevent corrosion, add structural strength to metal . . . and new applications develop daily.

**If you'd like literature** on reclaimable Chlorothene NU, Ambitrol FL, or the Vorane urethane chemicals, write us in Midland. Or if you have a problem, regardless of industry, bring it to us. We'd like to help you solve it.

*TRADEMARK

**THE DOW CHEMICAL COMPANY** DOW Midland, Michigan

For More Facts Write No. 200 on Information Card—Last Page

# NEW *from* NORTON

# *THE DIA-CROWN LINE...*

## *with the first really new bond in all diamond wheel history!*

### *...B-56, an unparalleled advancement for all carbide grinding ...wet and dry*

Since Norton Company developed the first diamond wheels for industry in 1929 it has been the leader in diamond wheel progress — first the resinoid bond, then the metal and vitrified bonds.

Now comes another "first" from Norton, a brand-new bond, the B-56, an outstanding development combining greater productivity and economy for either wet or dry carbide grinding in ONE bond — providing the finest diamond wheels, the Dia-Crown line, ever produced for tool sharpening, die grinding and all other carbide toolroom or production jobs.

In test after test on the widest range of carbide grinding, wet and dry, in customers' plants, Norton Dia-Crown B-56 wheels have outperformed all other wheels with major results — per job — including the following:

- Increased volume of carbide removed, per unit of time.
- Longer wheel life without sacrificing speed of cut.
- More workpieces handled per wheel.
- Considerably lower wheel cost per cubic inch of carbide removed.

*Believable? . . . It sure is!* Look at these quotes from customer reports!

"*Wheel was so good we could hardly believe it, and checked test results again . . . still showed 30% longer wheel life.*"

"*This wheel reduced grinding costs from 13¢ to 7¢ per tip.*"

"*An extremely fine wheel. Cuts more carbide in a given time than any other wheel.*"

"*Best wheel ever used. Will convert to this for all our diamond wheel operations.*"

That's what our customers say — and it's due to this entirely new Norton resinoid bond — a truly outstanding development. Norton Dia-Crown wheels with this new bond are available in all types and sizes for carbide grinding. Remember, too, that if two wheels of the same size and type have been required for wet and dry grinding — this ONE new wheel will now do both — wet *or* dry, reducing inventories and cutting costs.

Get complete facts on how this new Dia-Crown line of diamond wheels can improve your carbide grinding and save you time and money. See your Norton Man, a trained Abrasive Specialist, or your Norton Distributor. NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors around the world.

NORTON
ABRASIVES

W-2024

Making better products . . . to make your products better

**NORTON PRODUCTS:** Abrasives • Grinding Wheels • Machine Tools • Refractories • Non-Slip Floors — **BEHR-MANNING DIVISION:** Coated Abrasives • Sharpening Stones • Pressure Sensitive Tapes

For More Facts Write No. 201 on Information Card—Last Page

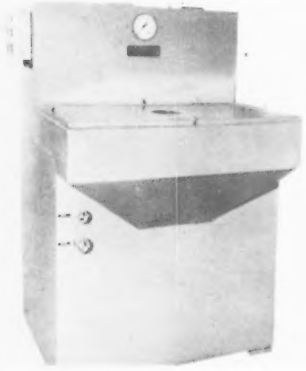
## Products

(Continued from page 106)

its contents. By scoring carton sidewalls evenly, tool permits folding top down to proper depth. This saves stripping, excelsior, postage, and time, and permits reuse of old cartons. **Markey Products, 332 W. 9th St., Kansas City, Mo.**

Write No. 21 on Information Card—Last Page

### Sit Down Blast Unit For High Production Finishing



A sit down wet blast unit is designed for semi-automatic operation and high production finishing of resistor leads, small printed circuits, spark plugs, electronic switches, and similar parts. In addition to the sit-down design, unit is fitted with two adjustable blast guns which rotate a full 360 degrees. Each gun is rated at 20 cfm at 80-90 psi. The unit measures 30 in. wide by 28 in. deep and 45 in. high with all areas of the cabinet coming in contact with abrasive slurry fabricated of stainless steel. The top shelf is transparent plexiglass which offers operator view of guns and hopper. A self-contained exhaust blower removes abrasive mist during blast operation. Unit requires ½ in. air connection, ½ in. water connection, and 110 volt elctrical line for immediate operation. **Pressure Blast Mfg. Co., 27 Pleasant St., Manchester, Conn.**

Write No. 22 on Information Card—Last Page

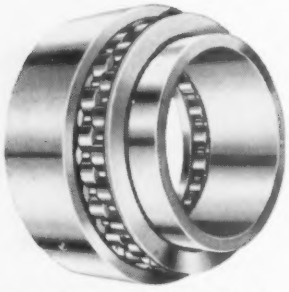
### Low-Cost Optical Gage Gives High Accuracy

A low-cost optical gage provides absolute measurements for routine production. Instrument is accurate to 25 millionths of an inch and operates within normal temperature ranges without correction tables. It measures parts directly, completely eliminating gage blocks or master setups. Instrument weighs only 60 lbs and housing measures 21¼ x 11¾ x 10¾ in. **Bausch & Lomb Inc., Rochester 2, N. Y.**



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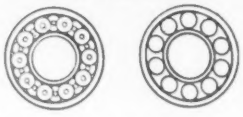

**Roller Bearing for Heavy Duty**



**Unique staggered roller design provides**

- **higher load capacity**
- **smoother running**
- **longer bearing life**





**ORANGE**

"STAGGERED" ROLLER BEARINGS

**In heavy-duty applications** the higher load capacity of Orange Staggered Roller Bearings permits the use of smaller bearings, thus saving space and weight. Replacing present bearings, same size, adds extra capacity and longer bearing life.

**In precision applications** requiring extremely smooth rotation (such as rolling sheet or foil, rotogravure printing, etc.) the even distribution of load over many contact points provides exceptionally smooth running.

End views of Orange Staggered Roller Bearing (left) and a conventional bearing (right) show how Orange staggered roller design brings maximum roller surfaces in contact with the load.

•

Complete range of sizes interchangeable with other bearings in the 200 and 300 series.

*Write for 40-page Engineering Reference Manual giving details.*

**ORANGE ROLLER BEARING CO., INC.**
**554 Main St., Orange, N. J.**

For More Facts Write No. 202 on Information Card—Last Page

**NEW Franklin standard motors of LIGHTWEIGHT aluminum**



**Speed-up**

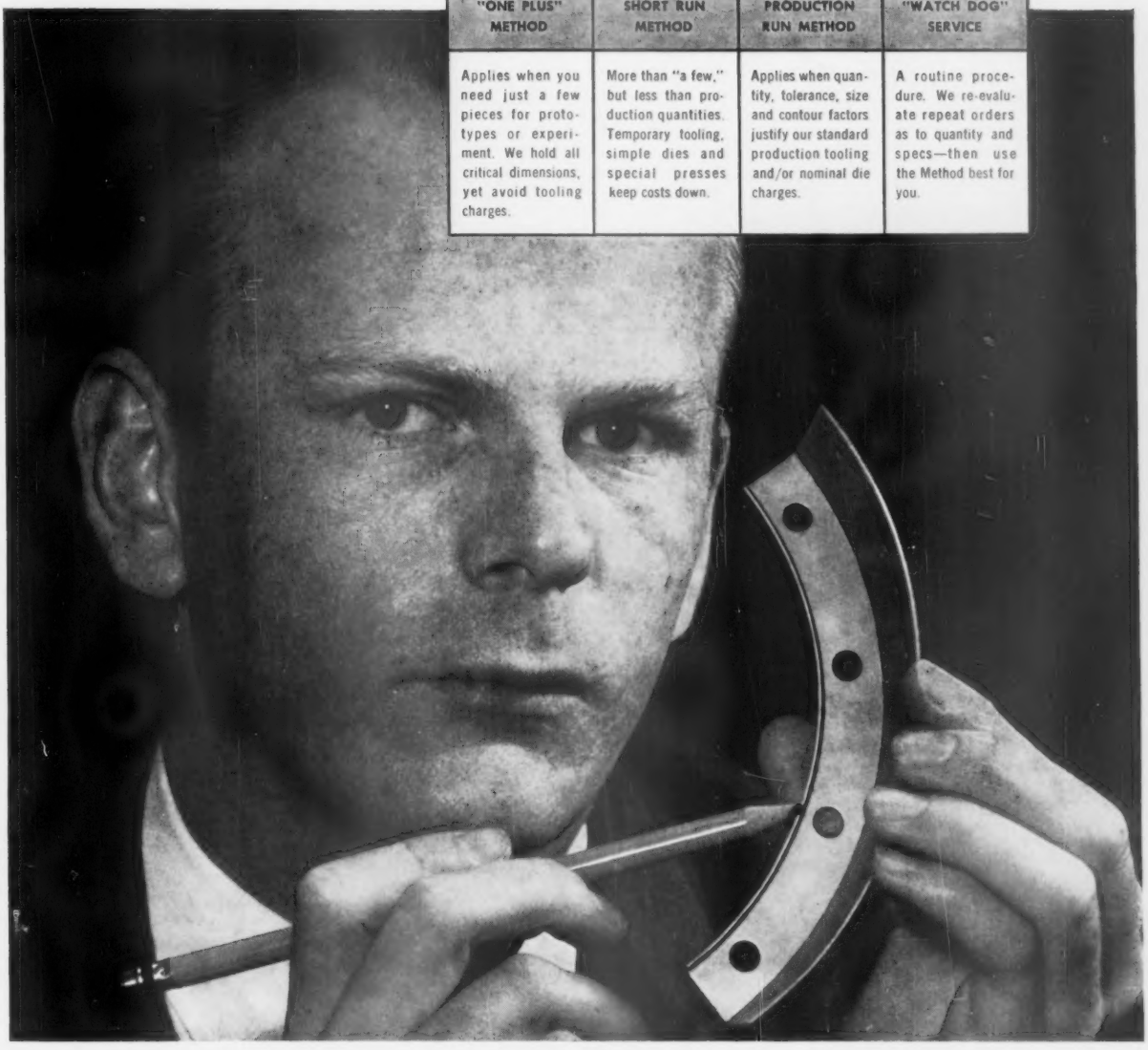
**ASSEMBLY LINE HANDLING!**

Up to 30% lighter than ordinary motors. Easier handling. Less shipping costs. Yet the new Franklin integral hp motor is stronger, has greater shock resistance than comparable cast iron motors. See it. And write Department P-10 for a free color brochure.

**Franklin Electric Co., Inc.**
BLUFFTON, INDIANA

For More Facts Write No. 203 on Information Card—Last Page

| SERVICE IN STAMPINGS | | | |
|---|---|---|---|
| "ONE PLUS" METHOD | SHORT RUN METHOD | PRODUCTION RUN METHOD | "WATCH DOG" SERVICE |
| Applies when you need just a few pieces for prototypes or experiment. We hold all critical dimensions, yet avoid tooling charges. | More than "a few," but less than production quantities. Temporary tooling, simple dies and special presses keep costs down. | Applies when quantity, tolerance, size and contour factors justify our standard production tooling and/or nominal die charges. | A routine procedure. We re-evaluate repeat orders as to quantity and specs—then use the Method best for you. |



# "Q CONTROL" IS THE KEY TO BETTER STAMPED METAL PARTS

The Services displayed and briefly described in the chart above permit selection of the exclusive cost-cutting and quality-controlled techniques best suited to your specs and quantity requirements. *You specify and we deliver.* This definition of ideal Stampings production is the result of specialization in stamping since 1913.

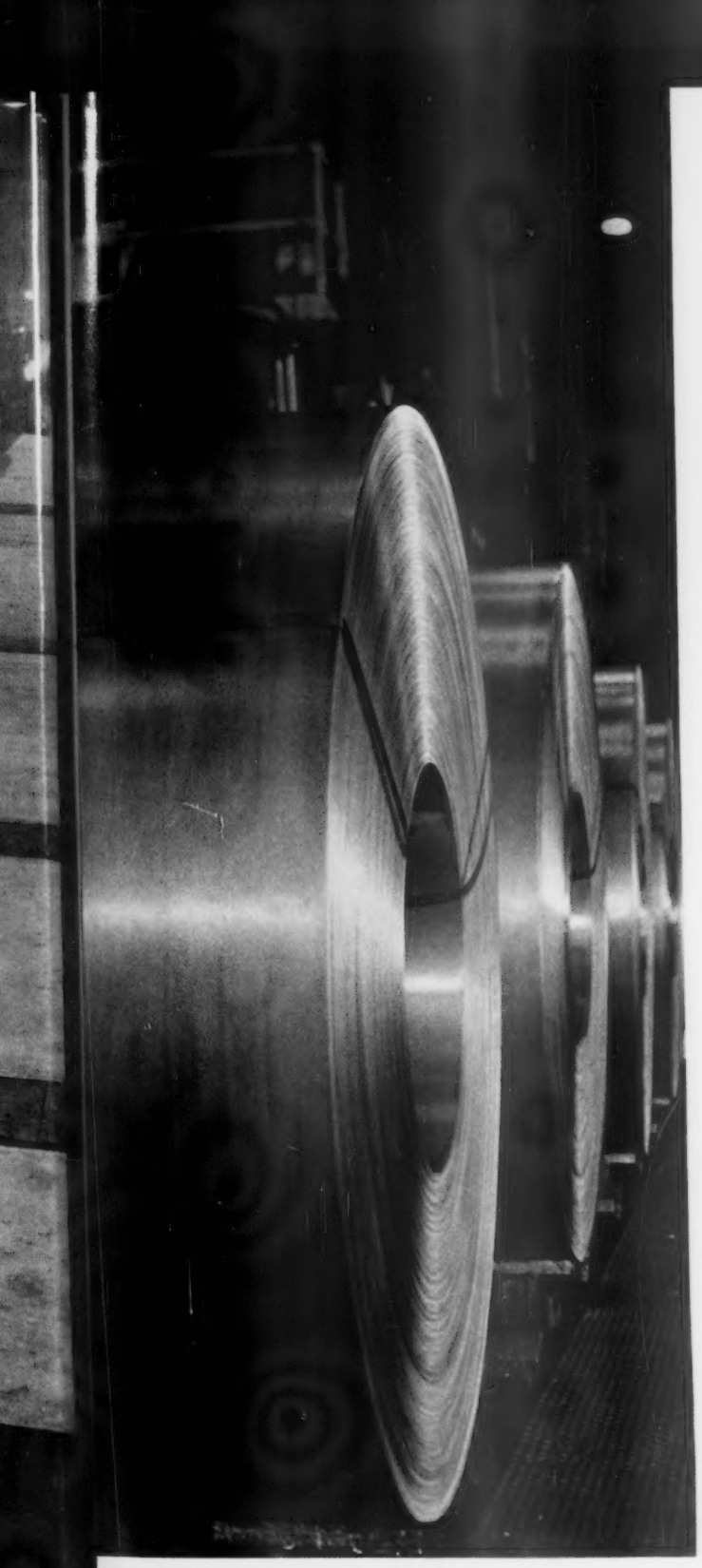
With *Service in Stampings* you get top quality Stamped Metal Parts **(1)** in any size, any shape, ranging from tiny lock washers to electronic chassis to husky rocker arms . . . **(2)** in any quantity, from a single prototype to a million or more . . . **(3)** all within accepted tolerances and finishes for the class of work involved . . . **(4)** at surprisingly low cost.

So . . . for better Stamped Metal Parts, faster and at low cost, call DAvis 5-2631 or send your prints for quotes directly to the . . .

LAMINATED SHIM COMPANY, INC.,
2410 Union Street, Glenbrook, Conn.

For More Facts Write No. 204 on Information Card—Last Page





# NEW 79"

## You get larger coils, higher quality from Youngstown's big, new 79" hot strip mill

Higher quality hot rolled steel sheet in larger coils. That's what you get from our expanded and modernized 79" hot strip mill in Campbell, Ohio. To bring you improved hot rolled sheet and strip, more than $60,000,000 was invested. Probing television monitors and delicate, sensitive electronic devices plus massive roll stands, and bigger coilers combine to bring you even better quality control.

These improvements in our hot strip mill are only part of Youngstown's sheet and strip story. New coil annealing facilities, a new shear line and a new Youngstown open coil annealing process for one coat enameling sheets give you a growing source of hot and cold rolled steel products.

Get steel stamped with the mark of Youngstown. Get longer, stronger, flatter steel. Steel sheet and strip of more uniform quality. With better physical properties. Hot and cold rolled steel that is easier to work with and more economical to use because you can get larger coil sizes to 38,000 pounds. In 24" to 72" widths. Order to your specifications. Get fast, reliable delivery from your Steel Service Center or through the 28 Youngstown Offices.

**Youngstown – growing force in steel**

For full details on Youngstown steel sheet and strip, write: Dept. 11-A,
**The Youngstown Sheet and Tube Company, Youngstown, Ohio**

## Products

### Pencil or Ball Pen Mark Aluminum Tags



Aluminum data tags made of fiberboard laminated between two layers of .003 in. gauge aluminum foil can be directly embossed with pencil or ball-point pen, thus eliminating the need for expensive embossing equipment. Uses for the tags include valve and pipeline identification, coding and dating, parts identification, inspection and quality control, inventory control, and many others. Short lengths of wire are supplied with tags so that they can be easily attached. Aluminum's resistance to corrosion makes the tags ideal for outdoor applications. Data record will not smudge, fade or wash off since the message is embossed directly in the tag. **Wittek Products Co., Van Nuys, Calif.**

Write No. 24 on Information Card—Last Page

### New Bond Cuts Cost of Diamond Wheel Grinding

A resinoid bond for diamond wheels makes it possible for one wheel to grind carbide either wet or dry more economically than with wheels previously available. Field tests show increased life over other wheels of up to 30%. In a few cases wheel life was doubled. Finish and freeness of cut were maintained while grinding ratio increased (i.e. more carbide was removed per unit of wheel wear). Wheels made with the new bond, designated B-56, are available in all sizes and shapes. In general, the new bond does not require a change in wheel specification for doing the same operation as former wheels. Cost savings result from greater productivity and versatility of one wheel for both wet and dry grinding. Prices of the B-56 bonded diamond wheels are the same as those made with other resinoid bonds. **Norton Co., Worcester 6, Mass.**

Write No. 25 on Information Card—Last Page

### Switchgear Line Raises Standards

Switchgears in an established line have been redesigned to provide increased safety and ease of maintenance. Circuit breaker provides added economy because of uprating of first three individual breaker sizes from 225, 600 and 1600 amps. to 400, 800 and 2000 amps. Stress is on "user-oriented" design which features safety, economy, dependability and accessability for easy maintenance. Benefits of fully-rated

(*Please turn to page* 118)




*Alloy and Carbon Cast Steel Wheels by*

**FARRELL-CHEEK**

While the need for replacement wheels is ever present in any plant, your purchases will be many times further apart if you make them for wheels and rollers of famous F85 alloy or F-C carbon electric furnace cast steel.

Crane wheels, typical of Farrell-Cheek circular steel castings, have the rigidity, toughness and hardness of treads and flanges to greatly outperform original equipment or replacement wheels.

CATALOG 24 HAS FULL LINE DESCRIPTIONS, ORDERING DATA AND COMPLETE SPECIFICATIONS. WRITE TODAY . . .




"FOUNDRYMEN FOR OVER FIFTY YEARS"

**FARRELL-CHEEK STEEL CO.**

105 LANE STREET, SANDUSKY, OHIO

For More Facts Write No. 206 on Information Card—Last Page




# New! Higher permeability, no extra cost...

## in small transformer core laminations.

Pack extra performance into your miniature transformers *at no extra cost* with Magnetic Metals' new mite-size transformer core laminations. Use these carefully engineered laminations where you need high specific resistivity and low hysteresis loss, particularly where you require low core loss at high frequencies. They let you miniaturize your designs even further without sacrificing performance.

Supplied only by Magnetic Metals, these new small laminations are made of "Supermu 40"* which provides the highest permeability commercially available. Advanced manufacturing techniques now bring this premium line of laminations to you at no extra cost.

Write today for more information on our entire line of small transformer core laminations. Our engineers are ready to help you select, from the most comprehensive line of laminations in the industry, the best grade of material for the exact results you want.

MAGNETIC METALS

Hayes Avenue at 21st Street, Camden 1, New Jersey
853 Production Place, Newport Beach, California
*transformer laminations • motor laminations • tape-wound cores*
*powdered molybdenum permalloy cores • electromagnetic shields*

*79% nickel-iron molybdenum alloy

For More Facts Write No. 207 on Information Card—Last Page



Mobilplex EP grease has good pumpability over wide ranges of temperature and shear rates. Here, Mobilplex EP is pumped through a 24-foot coil of $\frac{3}{8}$" tubing frozen in ice at 15 F . . . remains pumpable, permits continuous delivery even at critical pumping rate.

Mobilplex EP resists both water wash and runout caused by heat. In this demonstration, an immersion heater is used to boil water in a conventional mesh vegetable strainer coated with Mobilplex EP. Grease maintains a water-tight film even under these adverse conditions.



Mobilplex EP gives extra protection against wear under heavy and shock loads. Here, two split "bearings" consisting of V-shaped bushings are clamped under equal pressure on a polished steel shaft. The front bearing is lubricated with Mobilplex EP; the rear bearing with a high quality non-EP grease. When bearings are reciprocated in opposite directions, the shaft turns with the rear bearing, indicating frictional resistance is greatest at this point.

**EVALUATION SUMMARY**
MOBILPLEX EP (M) and 5 Leading Competitive EP Greases (A,B,C,D,E)

| PROPERTY EVALUATED | RATING | | | |
|---|---|---|---|---|
| | *Excellent* | *Good* | *Fair* | *Poor* |
| Heat Resistance | M | A | C,D,E | B |
| Service Performance | M | A,C,E | B,D | |
| Extreme Pressure | M,A,C | B,D,E | | |
| Anti-Wear | M,A | B,C | D,E | |
| Rust Protection | | M,B,C, D,E | | A |
| Water Resistance | | M,B,C | A,D,E | |
| Handling Properties | | M,A,B C,D,E | | |
| Controlled Bleeding | | M,A,C | B,D,E | |
| Non-staining | | M | A,B, D,E | C |

This chart summarizes results of an extensive evaluation program at Mobil Research. For complete details ask your Mobil representative.

*The Multi-Service* Grease with unique Calcium EP Complex. Never before in a single lubricant such a wide range of use . . . such a margin of superiority . . . such a potential for maintenance savings!*

# Versatility unparalleled...

# Mobilplex ep

A product of Mobil research . . . Mobilplex EP . . . a Multi-Service extreme-pressure grease far superior in quality and range of applications to any multi-purpose grease available.

Mobilplex EP, with a unique Calcium EP Complex, provides maximum protection against wear, rust, washout and heat. Because of its greater versatility, Mobilplex EP goes further than competitive extreme-pressure greases in simplifying your lubricant application, storage and purchasing practices. This new-type lubricant has given industrial machines greater protection while replacing as many as seven other greases. Mobilplex EP has all of the advantages usually associated with EP greases—as well as excellent storage, structural and oxidation stability.

Examination of the Socony Mobil evaluation summary at left shows that in comparison with five competitive extreme-pressure lubricants Mobilplex EP is the only grease excellent or good in every grease quality tested. No wonder aluminum and steel mills, metalworking shops, cement plants, and the chemical and rubber industries are reporting dramatic success with Mobilplex EP.

For full details contact your local Mobil representative, or write Mobil Oil Company, 150 East 42nd Street, New York 17, New York.

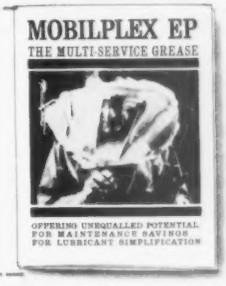
*Multi-Service means excellent for all types of anti-friction and plain bearings under various operating conditions up to temperatures in the range of 300 F. and for all types of dispensing equipment.

For a descriptive brochure and specific recommendations, cut out and mail on your letterhead.

**Mobil Oil Company, Room 2057C**

*Gentlemen:* Re: Mobilplex EP Grease Ad. Please have technical representative call to discuss:

- ☐ Performance results.
- ☐ A specific grease lubrication problem involving water____ caustic____ acid____ heat____.
- ☐ Reducing the number of greases in my plant.




Mobil

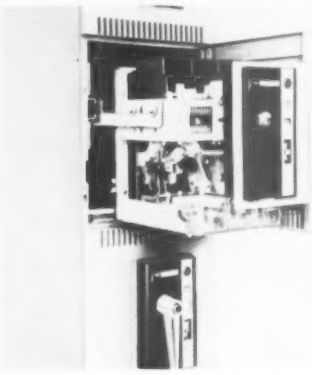
**Proved Petroleum Products . . . Available with a Mobil Program of Correct Lubrication**

For More Facts Write No. 208 on Information Card—Last Page

## Products

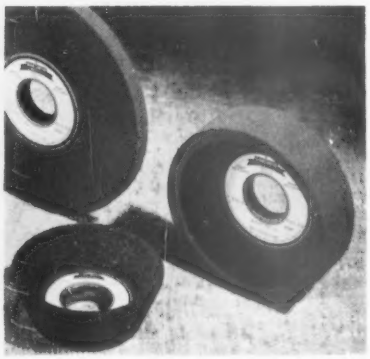
(Continued from page 114)

systems can be had without price penalty, while optimum continuity of service is guaranteed. **Federal Pacific Electric Co., 50 Paris St., Newark, N. J.**



Write No. 26 on Information Card—Last Page

### Grinding Wheel Uses Man-Made Rubies



A distinctive grinding wheel is purplish-red in color by virtue of synthetic ruby grain which is specially processed crystal line aluminum oxide. Combined with distinctive vitrified bond, material produces wheel which is a scientifically predictable cutting tool always "on grade." Wheel combines friability and toughness to exceptional degree, and performance is spectacular on hardest, toughest tool steels, as well as excelling for surface grinding, internal, tool and cutter and other precision work. Ruby wheel is available in straight, cup, dish and flaring cup shapes, and abrasive segments. **Simonds Abrasive Co., Tacony and Fraley Sts., Philadelphia 37, Pa.**

Write No. 27 on Information Card—Last Page





FOR CROSSETT LEATHERNECK WRAPPING PAPER

Contact these Authorized Dealers

| | |
|---|---|
| ABILENE, TEX. | Lind Paper Co. |
| ALEXANDRIA, LA. | Bancroft Paper Co.<br>Louisiana Paper Co. |
| APPLETON, WISC. | Universal Paper Corp. |
| ATLANTA, GA. | Dillard Paper Co. |
| AUGUSTA, ME. | Carter-Rice-Storrs & Bement, Inc. |
| AUSTIN, TEX. | Lone Star Paper Co. |
| BALTIMORE, MD. | Hubbs & Corning Co. |
| BATON ROUGE, LA. | Bancroft Paper Co.<br>Louisiana Paper Co. |
| BEAUMONT, TEX. | Magnolia Paper Co. |
| BOSTON, MASS. | E. F. Osment Paper Co.<br>Carter-Rice-Storrs & Bement, Inc. |
| BUFFALO, N.Y. | Alling & Cory Co.<br>Hubbs & Howe Co. |
| CHICAGO, ILL. | Abana Products, Inc.<br>Berkshire Papers, Inc.<br>Chicago Paper Co.<br>Inlander-Steindler Paper Co.<br>Montrose Paper Mills<br>Pilcher-Hamilton Co. |
| CINCINNATI, OHIO | Chatfield Paper Co.<br>Cinti. Cordage & Paper Co.<br>Diem & Wing Paper Co.<br>Merchants Paper Co.<br>Seinsheimer Paper Co. |
| CLEVELAND, OHIO | Alling & Cory Co.<br>Gascon Paper Co.<br>The Globe Paper Co.<br>The Union Paper & Twine Co. |
| COLUMBUS, OHIO | Central Ohio Paper Co.<br>Cinti. Cordage & Paper Co.<br>Diem & Wing Paper Co.<br>Standard Paper Co. |
| CORPUS CHRISTI, TEX. | Corpus Christi Paper Co.<br>Magnolia Paper Co. |
| DALLAS, TEX. | Kaymac Paper Co.<br>Lind-Reed Paper Co.<br>Magnolia Paper Co. |
| DAVENPORT, IOWA | Peterson Paper Co. |
| DAYTON, OHIO | F. W. Lotz Paper Co. |
| DETROIT, MICH. | Beecher Peck & Lewis<br>Butler Paper Co.<br>Union Paper & Twine Co. |
| EAST HARTFORD, CONN. | Carter-Rice-Storrs & Bement, Inc. |
| EVANSVILLE, IND. | Capital Paper Co. |
| FT. WAYNE, IND. | Korte Paper Co. |
| FT. WORTH, TEX. | Western Paper Co.<br>Lind Paper Co. |
| GALVESTON, TEX. | Southern Paper Co.<br>Magnolia Paper Co. |
| GRAND RAPIDS, MICH. | Grand Rapids Paper Co. |
| HAMMOND, IND. | Inlander-Steindler Paper Co. |
| HIGH POINT, N.C. | General Paper Company |
| HOUSTON, TEX. | Houston Paper Co.<br>Magnolia Paper Co. |
| INDIANAPOLIS, IND. | Crescent Paper Co. |
| JACKSON, MISS. | Townsend Paper Co. |
| JERSEY CITY, N.J. | S. Safier Co. |
| KALAMAZOO, MICH. | Bermingham & Prosser Co. |
| KANSAS CITY, MO. | Bermingham & Prosser Co.<br>Standard Paper Co. |
| LANSING, MICH. | Dudley Paper Co. |
| LITTLE ROCK, ARK. | Arkansas Paper Co.<br>Roach Paper Co. |
| LOUISVILLE, KY. | Louisville Paper & Mfg. Co.<br>Southeastern Paper Co. |
| LUBBOCK, TEX. | Western Paper Co. |
| McALLEN, TEX. | Magnolia Paper Co. |
| MEMPHIS, TENN. | Mayer Myers Paper Co.<br>Wurzburg Brothers, Inc. |
| MILWAUKEE, WISC. | W. H. Kranz Co.<br>Wisconsin Paper & Products Co. |
| MINNEAPOLIS, MINN. | John Leslie Paper Co. |
| MONROE, LA. | Bancroft Paper Co.<br>Louisiana Paper Co. |
| MUNCIE, IND. | Schwartz Paper Co. |
| MUSKEGON, MICH. | Steindler Paper Co. |
| NASHVILLE, TENN. | Clements Paper Co. |
| NATCHEZ, MISS. | Bancroft Paper Co. |
| NEENAH, WISC. | Sawyer Paper Co. |
| NEW HAVEN, CONN. | Carter-Rice-Storrs & Bement, Inc. |
| OKLAHOMA CITY, OKLA. | Oklahoma Paper Co. |
| OMAHA, NEB. | Nogg Bros. Paper Co. |
| PAWTUCKET, R.I. | Carter-Rice-Storrs & Bement, Inc. |
| PHILADELPHIA, PA. | W. B. Kilhour & Sons, Inc.<br>Terminal Paper Co. |
| PITTSBURGH, PA. | Balter Paper Co.<br>Chatfield & Woods Co. of Penna.<br>Interstate Cordage & Paper Co. |
| RACINE, WISC. | W. H. Kranz Co. |
| ROCHESTER, N.Y. | Alling & Cory Co.<br>Hubbs & Howe Co. |
| SAGINAW, MICH. | Dudley Paper Co. |
| SHREVEPORT, LA. | Bancroft Paper Co.<br>Louisiana Paper Co. |
| SPRINGFIELD, ILL. | Capital City Paper Co. |
| ST. JOSEPH, MO. | Sheridan-Clayton Paper Co. |
| ST. LOUIS, MO. | American Commission Co.<br>Rosenthal Paper Co.<br>Royal Papers, Inc.<br>Shaughnessy-Kniep-Hawe Paper Co. |
| TEXARKANA, TEX. | Louisiana Paper Co. |
| TOLEDO, OHIO | Central Ohio Paper Co. |
| TULSA, OKLA. | Tulsa Paper Co. |
| TYLER, TEX. | Etex Paper Co.<br>Western Paper Co. |
| WACO, TEX. | Lind Paper Co. |
| WALTHAM, MASS. | Waltham Bag & Paper Co. |
| WASHINGTON, D.C. | R. P. Andrews Paper Co. |
| WICHITA, KANS. | Southwest Paper Co. |
| WORCESTER, MASS. | Carter-Rice-Storrs & Bement, Inc. |

For More Facts Write No. 209 on Information Card—Last Page

*Quality-controlled for your finest wrapping use...*

## CROSSETT LEATHERNECK WRAPPING PAPER

When you buy from Crossett you buy more wraps per ton at the strength you desire. The reason is our Basis Weight Control Program. For greater convenience the new Cross-ett-Zip covering features a built-in tear strip. No more cutting of the wrapper, no more wasted top layers of paper. One easy motion peels off the outer wrapper . . . lets clean, usable paper unwind from the first inch of the roll.



**CROSSETT PAPER MILLS**

A DIVISION OF THE CROSSETT COMPANY, CROSSETT, ARKANSAS, MAKERS OF PAPER, LUMBER, CHARCOAL AND CHEMICALS —ALL FROM MANAGED FORESTS.



*Dress by Oleg Cassini*




Yes. But not a tall story. Because over 500 extra yards of filling yarn give extra strength to the Jelt® Denim in every Lee Bib Overall*. You'll find important extras in all Lee garments, because Lee Industrial Workwear and Uniforms are built to bring you an extra measure of toughness, wearability, efficiency and economy. And they fit into your industry's exact needs.

The Lee line is known as the largest, most complete in the industry. It includes Shirts, Jackets, Pants, Union-alls, Overalls, Service Coats and many others—and custom garments made to your specifications as well. And most important. Workingmen like to wear the Lee garment! It gives them a feeling of good-looking importance. Helps spark their morale—keeps it burning, too!

Call in an experienced Lee Consultant. Get the proven facts on the garments best suited to your needs. You'll find it's worth your while to let Lee work for you!

*(Enough yarn to reach to the top of the Empire State Building and back.)

WRITE TODAY TO
INDUSTRIAL DIVISION
H. D. LEE COMPANY
117 WEST 20th STREET
KANSAS CITY 41, MO.

Lee
UNION MADE

For More Facts Write No. 210
on Information Card—Last Page


## Products

### Rugged Two-Way Radios Use Little Power




A line of industrial two-way radios features fully transistorized receivers. The lightweight dispatcher radios can be mounted on any industrial vehicle regardless of size, making it ideal for material handling and other plant uses. The unit is transistorized for high reliability, low battery drain, and ruggedness. It draws a minute amount of power from the battery, as little as 0.4 amps when operated on 24 V, but audio output of 5 watts enables clear reception in high-noise plant areas. **Motorola, Inc., Communications Div., 4501 W. Augusta Blvd., Chicago 51, Ill.**

Write No. 28 on Information Card—Last Page

### Fire Blanket Snuffs Out Flames

A compact wool fire blanket snuffs out flames quickly and completely from head to foot when clothing is afire. Blanket is especially designed for use in chemical plants and such other industries as paint, steel, oil, etc. The 62 x 82 in. flameproofed blanket is packaged in a rugged, red-colored case designed for vertical attachment to a wall near danger points. In emergency victim can pull loop of fireproofed rope which opens case and permits pleated protective covering to move forward as victim revolves, wrapping himself in blanket. **Mine Safety Appliances Co., 201 N. Braddock St., Pittsburgh 8, Pa.**

Write No. 29 on Information Card—Last Page


All These Services from your LUNKENHEIMER DISTRIBUTOR

- FASTER DELIVERY
- EMERGENCY SERVICE
- TRAINED PERSONNEL
- SIMPLIFIED PURCHASING
- NEARBY WAREHOUSING
- DEPENDABLE VALVE APPLICATION SERVICE

Let us show you the brand new BALL VALVES and BUTTERFLY VALVES

FOR THE BEST
• QUALITY
FOR THE BEST
• SERVICE

...call your local LUNKENHEIMER DISTRIBUTOR

LUNKENHEIMER Q QUALITY

INDUSTRIAL DISTRIBUTORS SERVING INDUSTRY ECONOMICALLY THE RIGHT HAND OF PRODUCTION

L-1061-15

For More Facts Write No. 211
on Information Card—Last Page

# COMPLETE

C-O-M-P-L-E-T-E–that's the word that best describes Wolverine Tube's finned tube product line and customer services.

For example, illustrated here are seven different types of Wolverine Trufin®–the integrally finned tube. Included are both low-finned and high-finned types for such applications as shell and tube units, water heaters and boilers and air cooled heat transfer requirements.

Wolverine Tube has manufactured integrally finned tube much longer than any other company in the industry; thus, Wolverine customers have a reliable and readily available source for finned tube literature, information and technical heat transfer consultation and guidance.

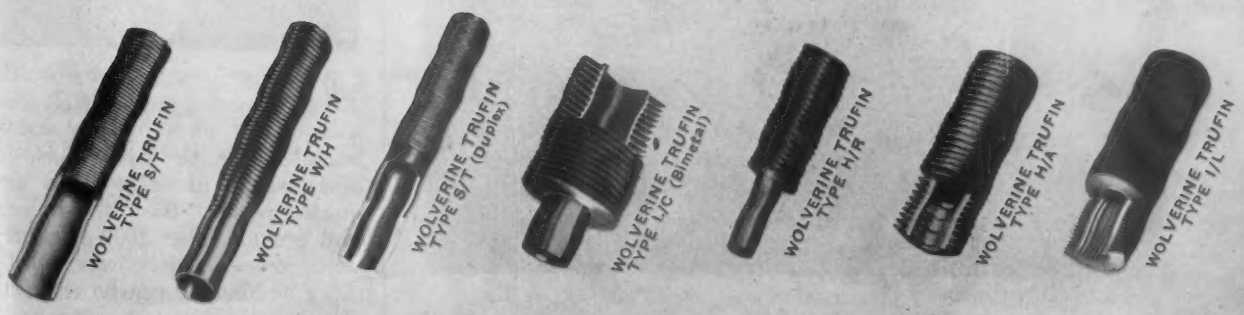
So, to *completely* consider finned tube, its comparative values, performance ratios and to find the finned tube best suited to your needs, turn to Wolverine. For complete information write, wire, call or . . . Ask Your Wolverine Tube Salesman . . . He Knows!



**NEED HEAT TRANSFER HELP?** Wolverine Tube's Field Engineering Service–a staff of competent, highly trained tubing technicians–is ready at all times to help you solve heat transfer problems concerning tubing. All you have to do is ask–there is no obligation.

**WOLVERINE TUBE**
DIVISION OF
**Calumet & Hecla, Inc.**
DEPT. R, 17250 SOUTHFIELD RD., ALLEN PARK, MICH.

PLANTS IN DETROIT AND INKSTER, MICHIGAN AND DECATUR, ALABAMA. SALES OFFICES IN ALL PRINCIPAL CITIES

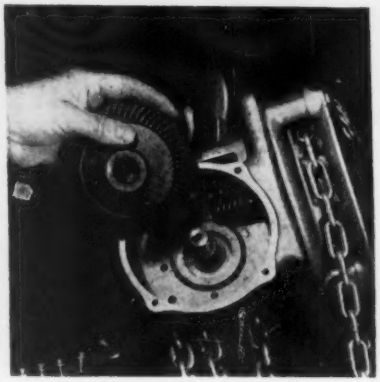





For More Facts Write No. 213 on Information Card—Last Page

## Products

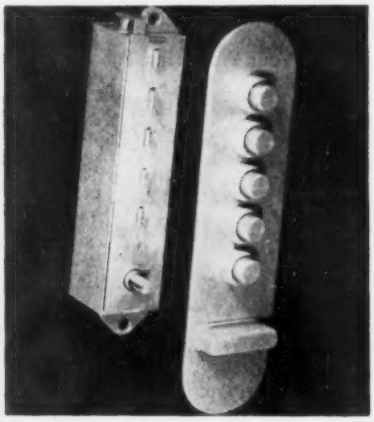
### Hand Hoists Feature Spiroid Gearing



A line of portable aluminum hand chain hoists uses spiroid gear transmission for greater power and increased load control. Hoists are available in 11 models with rated capacities from ½ to 12 tons. Spiroid gear transmission provides added safety, faster hoisting, unusual maneuverability, reduced bulk and light weight. **Coffing Hoist Division, Duff-Norton Co., Four Gateway Center, Pittsburgh 22, Pa.**

Write No. 30 on Information Card—Last Page

### Push Button Lock Gives Maximum Security



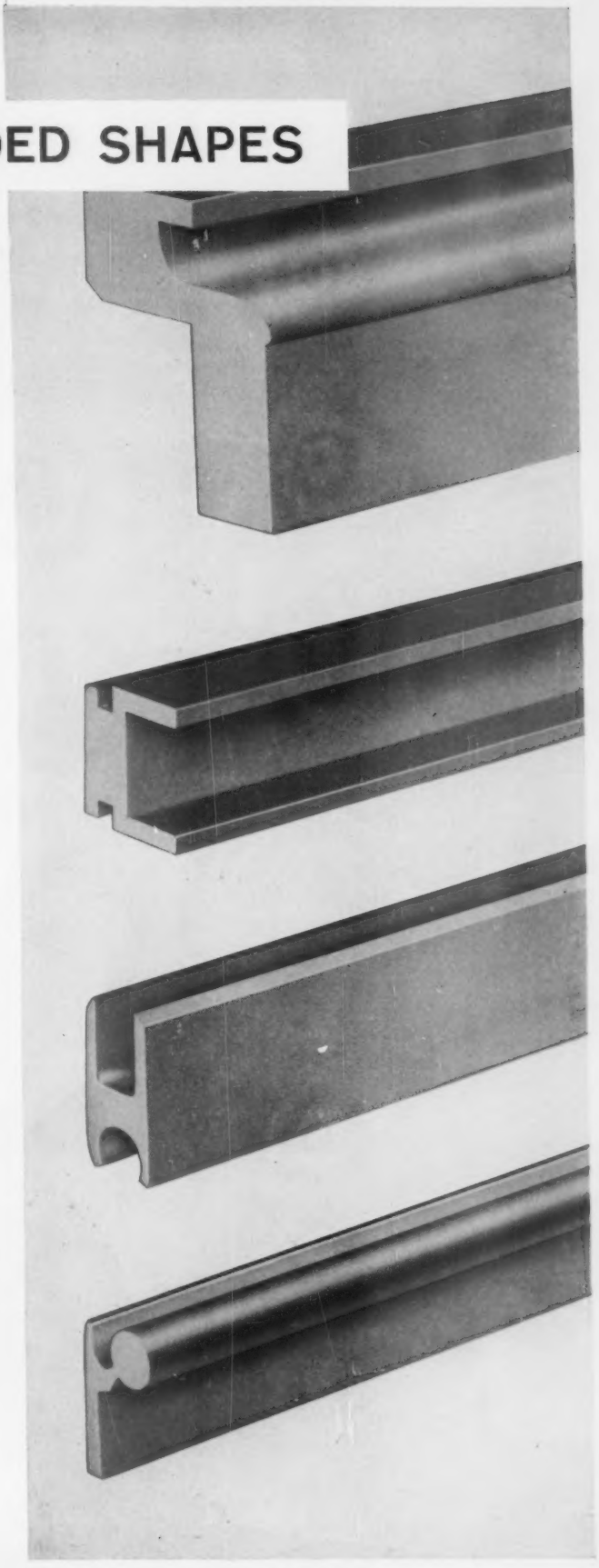
A unique locking device which provides maximum security consists of five push buttons and a knob, handle or lever. Lock is operated by fingertip alone, requiring no key. Basic five-button unit provides over 1000 combinations; other models over 1,000,000. Combination can be changed

(*Please turn to page* 126)

# ANACONDA EXTRUDED SHAPES

## preformed to cut fabricating costs

## ...preferred for superior quality!



Would you like to reduce machining, scrap, and finishing by *cutting* parts from long lengths of extruded shapes?

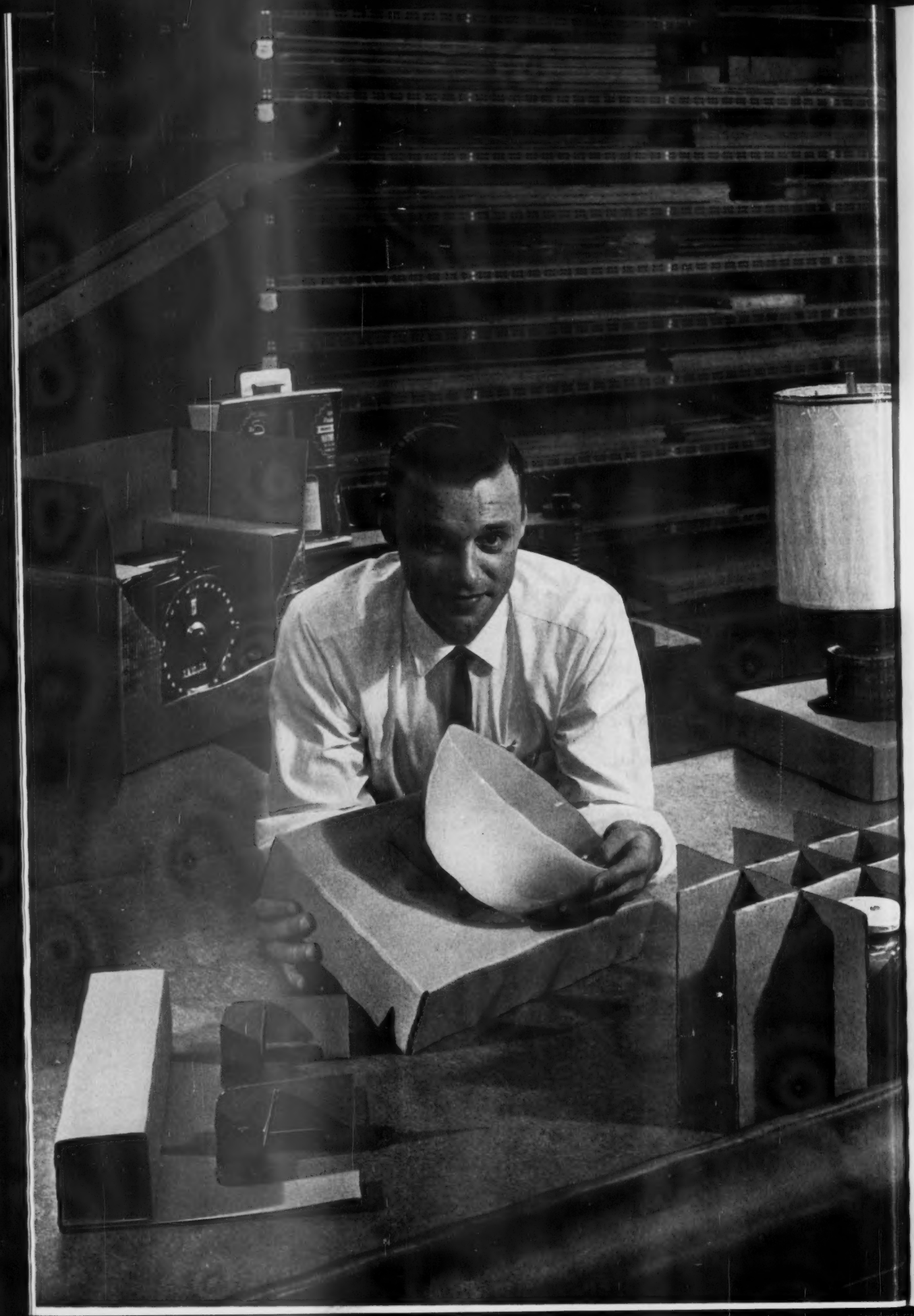
Anaconda shows you how . . . by designing long lengths of "pre-machined" shapes exactly suited to the parts you need. Parts made from these extruded brass shapes are characterized by their strong, homogeneous, wrought-metal structure. They are superior, long-wearing parts that *improve* the quality of your finished product. What's more, the smooth, extruded surfaces also reduce many finishing operations —additional savings for you.

Discover why more and more manufacturers are cutting fabricating costs and maintaining better quality by using these preformed shapes. Let our technical service personnel lend practical—and imaginative—help in adapting extruded shapes to the economical production of intricate parts.

Call your Anaconda representative or write: Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario. 61-1063

EXTRUDED SHAPES

**ANACONDA®**
**AMERICAN BRASS COMPANY**



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# No wonder his wife leaves the packing to him!

**You can count on Union-Camp box designer Bob Pyle to come up with the most efficient corrugated interior packing—no matter what the product or how it is shipped.**

THE GLASS BOWL in our picture is safe enough in Bob Pyle's hands. The trick is to see that it travels just as safely once it is packaged.

This takes an unusual combination of skill and experience. The kind Bob is known for. Bob is one of a team of Union-Camp corrugated box engineers who specialize in *interior* packaging of a product.

It's a challenging specialty. Just consider the problems of packaging a television set, for instance. Says Bob: "The set must be *locked* in position and perfectly cushioned against shock. Then we have to allow sufficient clearance on all sides so that the *finish* is protected against scratches. And the box should have sufficient stacking strength so that it can be tiered up high in the warehouse.

"Then there's the packing operation to consider. The box must be adaptable to high-speed assembly line operation so that the job can be done as quickly and cheaply as possible—consistent with the protection needed."

Other products, Bob points out, may call for different types of safeguards in the package. To keep out dust. To prevent corrosion or spoilage. Actually, the forms of inner packing are as varied as the items they protect.

Some of these items are well-known: food products, canned beverages and appliances, for example. But some others may surprise you. High-voltage equipment weighing over 300 pounds. Centrifugal pumps. Heavy industrial sewing machines. Formerly they required expensive crating. Now they travel safely and economically in custom-tailored containers developed by Union-Camp box designers like Bob Pyle.

Oddly enough, small-cost items often can create the biggest problems. One case in point was a lamp sold in variety stores for only $2.98. It was made of a fragile plastic, and the manufacturer's profit margin was so low that he had almost no budget for the intricate packaging that would seem to be necessary for proper protection. Bob Pyle devised a simple, inexpensive inner packing unit. To date, not a single lamp has reached its destination in a damaged condition!

Could a Union-Camp box designer like Bob Pyle help improve your product's protection, reduce your packaging and shipping costs? The answer is as near as your telephone. Call in a Union-Camp corrugated box representative. He'll tell you about our complete packaging evaluation program. It includes package analysis, box design and development, specifications control, merchandising counsel and in-plant surveys of your materials handling operation.

Or, a note on your letterhead will bring a prompt reply. Why not write today?



UNION-CAMP®

CORRUGATED BOXES

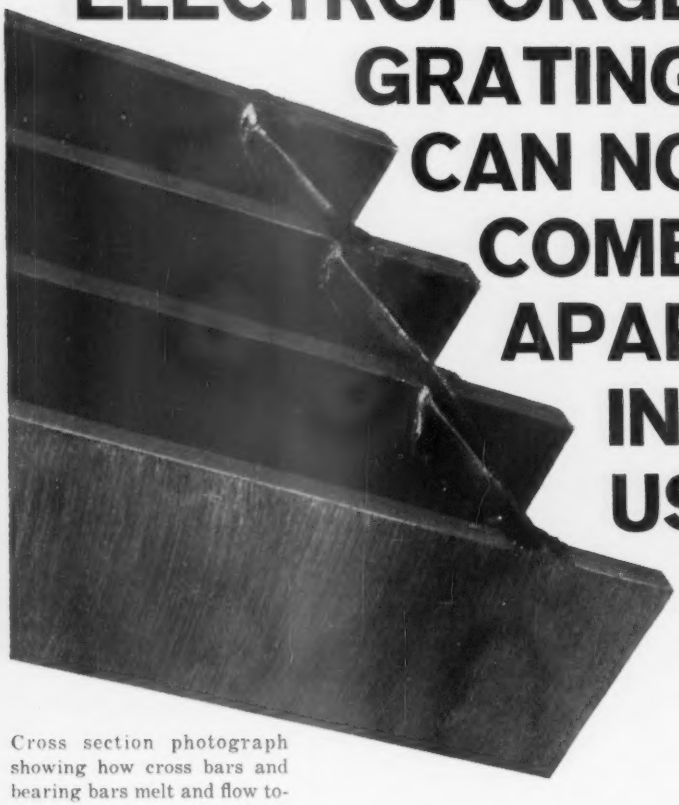
Union Bag-Camp Paper Corporation · 233 Broadway N.Y. 7, N.Y.

Plants:

*Dedham, Mass.: Allied Container Corp., Route 128, Allied Drive
Trenton, New Jersey: 1400 E. State St.
†Washington, Penna.: P.O. Box 285
†Cleveland, Ohio: 10200 Miles Ave.
†Sharonville, Ohio: P.O. Box 86
Chicago, Ill.: 4545 West Palmer
†Benton Harbor, Mich.: 11th St. & Britain Ave.
†Monroe, Mich.: 1109 East Elm Ave.
†Eaton Rapids, Mich.: P.O. Box 8
*Baltimore, Md.: Eastern Box Co.: Wagner's Point
Jamestown, N.C.: 3704 Point Pleasant Rd.
Spartanburg, S.C.: P.O. Box 1965
Savannah, Georgia: P.O. Box 570
Lakeland, Florida: P.O. Box 454

*Subsidiary Companies †River Raisin Division

# WHY ELECTROFORGED® GRATING CAN NOT COME APART IN USE



Cross section photograph showing how cross bars and bearing bars melt and flow together for great strength and long life.

The bearing bars and cross bars of Blaw-Knox Electroforged grating are permanently forged into one homogeneous piece under simultaneous high temperature and pressure. ■ Forever after they can not come apart. ■ Each panel is rigid, extra strong, easy to handle and as easy to cut and fit accurately as solid plate. ■ There are no cracks or crevices to catch dirt or promote corrosion. ■ Rectangular cross bars are twisted to present multiple square edges for anti-skid walking. Bearing bars may be serrated for maximum safety under the most hazardous conditions. ■ Want to know more? ■ *Write for FREE COPY of Bulletin 2581. New Data File of fast facts on design and specifications of Blaw-Knox Grating and Stair-treads. Write Blaw-Knox Company, Pittsburgh 38, Pa.*

**BLAW-KNOX**

*GRATING*

BLAW-KNOX

Blaw-Knox designs and manufactures for America's growth industries: METALS: Rolling Mills • Steel Processing Lines • Rolls • Castings • Open Hearth Specialties • PROCESSING: Process Design, Engineering and Plant Construction Services • Process Equipment and Pressure Piping • CONSTRUCTION: Concrete and Bituminous Paving Machines • Concrete Batching Plants and Forms Gratings • AEROSPACE: Fixed and Steerable Antennas • Radio Telescopes Towers and Special Structures • POWER: Power Plant Specialties and Valves

For More Facts Write No. 215 on Information Card—Last Page


## Products

(*Continued from page* 122)

at any time in six seconds without tools. Precision engineered and simply operated, push button lock cannot be opened by picklock, X-ray, stethoscope, or touch. It is ideally suited for variety of applications, from desks and cash drawers to vending machines, tool chests and machine tools. **Simplex Lock Corp., 150 Broadway, New York 38, N. Y.**

Write No. 31 on Information Card—Last Page

### Ratchets Feature Strength, Simplicity



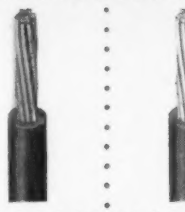
Ratchets in a radical design have a total of only seven parts instead of 12 to 18. Strength, simplicity and serviceability are featured. Heart of ratchet is oil-resistant neoprene rubber plug which actuates and holds pawls in position. Need for complicated and fragile springs is eliminated. Ratchet is so simple it can be field stripped with pocket knife and easily re-assembled. In ¼, ⅜, and ¾ in. square-drive models. **Crescent Tool Co., Jamestown, N. Y.**

Write No. 32 on Information Card—Last Page



". . . and say that I'm expecting him, Miss Hayes."







Rome Cable Division supplies
ALUMINUM WIRE AND CABLE
COPPER WIRE AND CABLE
ALUMINUM BUS CONDUCTOR
ALUMINUM CONDUIT





# How to use "value analysis" in buying electrical conduit

Evaluate Alcoa® aluminum electrical rigid conduit in terms of the problems it *solves* for you and the different people in your plant.

For example, an electrical engineer will tell you aluminum offers many *electrical advantages* over steel conduit. Because it is nonmagnetic and has high electrical conductivity, impedance is substantially lessened. Fault current safety devices operate quickly—surely—every time.

Those in plant engineering know that aluminum *resists corrosion*, requires no protective coating in most environments, is safe in food processing plants.

Maintenance people appreciate the way aluminum conduit keeps its *good appearance*, without routine painting. Also, it won't stain adjacent surfaces.

Those responsible for installation find aluminum's *light weight* advantageous. A ten-foot length of 4" aluminum conduit weighs only 34 pounds, compared with 98 for steel. Cutting, threading, bending—all are easy and quick.

Finally, consider your interest in *all* costs—initial, installation, and maintenance. Compare aluminum with steel, and you'll see what a good investment Alcoa aluminum conduit really is.

*Conforms to ASA C80.5-1960-Rigid Aluminum Conduit and Federal Specification WW-C-540a*

To confirm your own "value analysis," confer with any of our representatives. Or write for our 12-page booklet to Rome Cable Division of Alcoa, Dept. 14-101, Rome, New York.

ALCOA
ROME CABLE
DIVISION

For More Facts Write No. 216 on Information Card—Last Page




THERE'S A RIGHT WAY TO HANDLE $H_2O_2$, TOO!

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

Becco Chemical Division

It takes experience to determine the best way to handle $H_2O_2$. Becco's got it. Why not take advantage of Becco's fourfold engineering service, offering survey, proposal, installation and inspection. No obligation, of course.

161 East 42nd Street, New York City

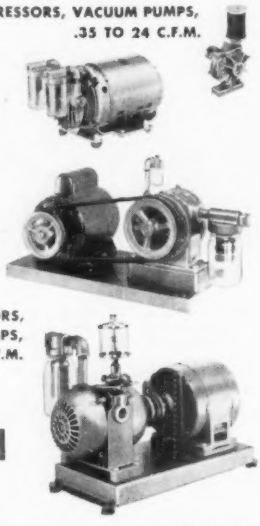
For More Facts Write No. 217 on Information Card—Last Page

OIL-LESS AIR COMPRESSORS, VACUUM PUMPS, .35 TO 24 C.F.M.

INTEGRAL-MOTOR AIR PUMPS .6 TO 3.8 C.F.M.

LIGHT-DUTY MODELS, .6 TO 24 C.F.M. V-BELT OR COUPLING

HEAVY-DUTY AIR COMPRESSORS, VACUUM PUMPS, 4 TO 50 C.F.M.



GAST VACUUM PUMPS and AIR COMPRESSORS

Extra dependability for plant use . . . for O.E.M.

Need a source of low pressure air or moderate vacuum? Check with Gast! Save money, time, effort in choosing the best air pump for your job.

Precision quality and rotary design provide outstanding dependability. Vanes take up their own wear . . . maintaining like-new performance. Quiet, non-pulsating air . . . no tank needed! Oil-less or lubricated models—direct coupling, V-belt or integral-motor drives. Sizes from 1/40 to 5 h.p., .35 to 50 c.f.m. Vacuum to 28" Hg, pressure to 30 p.s.i.g.

WRITE TODAY FOR CATALOG! If you can, specify pump type you need.

AIR MOTORS • VACUUM PUMPS • COMPRESSORS

GAST MANUFACTURING CORP.
P.O. BOX 117-X, BENTON HARBOR, MICHIGAN

For More Facts Write No. 218 on Information Card—Last Page

## Products

### Strapping Stand Cuts Cost for Small Users




A lightweight low-cost steel strapping stand is especially designed for small volume users of steel strapping. More economical than most dispensers, the Model NRE has a coil capacity up through ¾ in. x .028 mill wound coils, is ruggedly constructed from square steel tubing, and weighs up to 10 lbs less than similar reel stands. A conveniently located guide holds strap ready for each application while an adjustable friction brake gives smooth, controlled strap feed. Tension on the brake may be varied by adjusting a wing nut. **Stanley Steel Strapping Div., The Stanley Works, New Britain, Conn.**

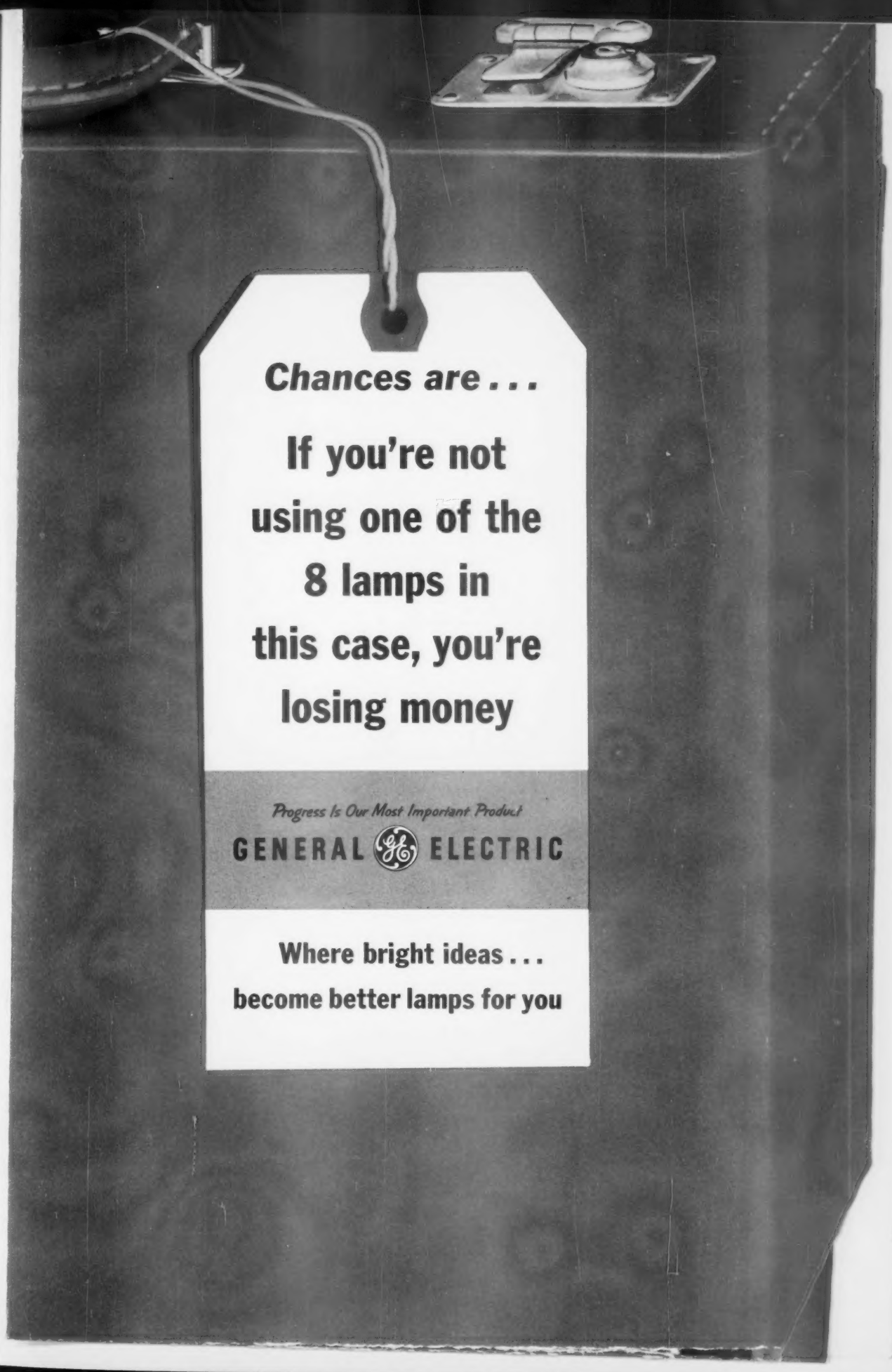
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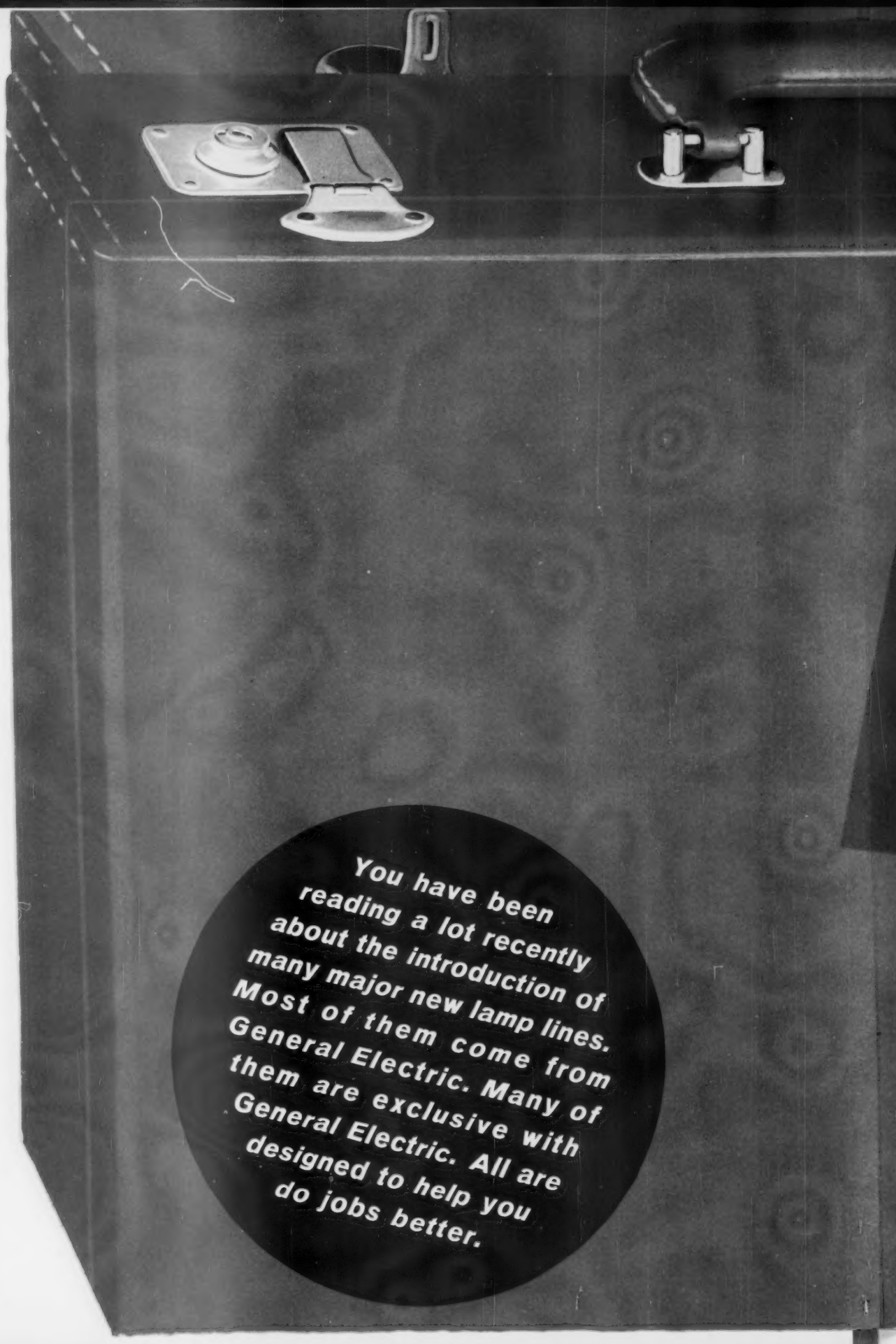
### Quick Release Fastener Won't Mar Finish

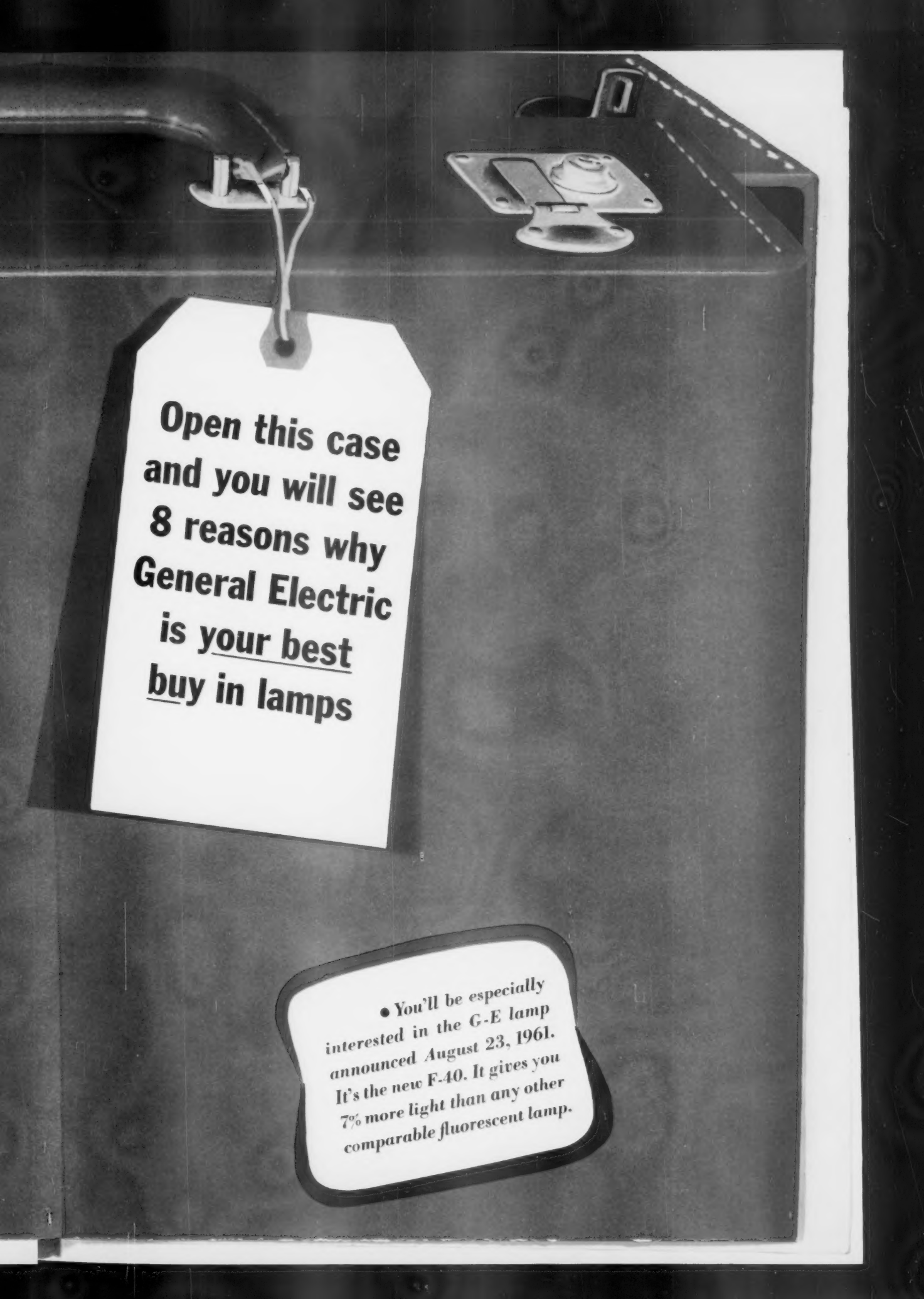


Design simplicity and efficient performance at very low cost are the advantages of a new quarter-turn, quick release fastener. Designated Type NY-Q, the one

(*Please turn to page* 139)

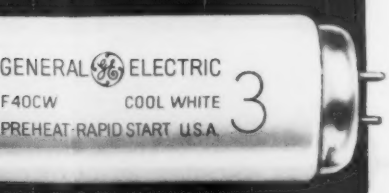

Chances are . . .
If you're not using one of the 8 lamps in this case, you're losing money
Progress Is Our Most Important Product
GENERAL ELECTRIC
Where bright ideas . . . become better lamps for you


You have been reading a lot recently about the introduction of many major new lamp lines. Most of them come from General Electric. Many of them are exclusive with General Electric. All are designed to help you do jobs better.


Open this case and you will see 8 reasons why General Electric is your best buy in lamps
• You'll be especially interested in the G-E lamp announced August 23, 1961. It's the new F-40. It gives you 7% more light than any other comparable fluorescent lamp.


Check which of these General
NEW
ON AUG. 23, 1961
GENERAL
F40CW
PREHEAT-RAPI
GENERAL
F48PG17-CW
COOL WHITE
GENERAL
F48T10J
1 2 3 4 5 6 7 8

# eral Electric Lamps will fit your needs



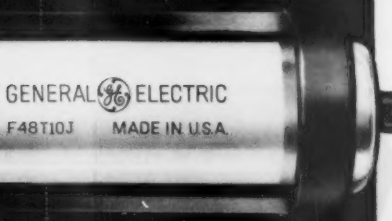

## EXCLUSIVE GENERAL ELECTRIC NEW F40

**New standard in 40-watt fluorescents**—Here's the brightest "white" 40-watt fluorescent on the market today. Rated at 3100 lumens in cool white . . . 3250 in white and warm white . . . this new standard lamp gives you 7% more light than ordinary fluorescents at no extra cost. That's a bonus of light worth 15¢ to 30¢ for most users . . . a bonus that comes from exclusive Premium 3 construction. And the G-E New F40CW lists for only $1.30 . . . the same low price as ordinary lamps. Designed for Rapid Start *and* starter-type circuits. The life rating is 7500 hours for most circuits—6000 hours in systems installed before 1954. For 7500-hour life in pre-1954 systems, specify New F40/54 lamps. They give 2900 lumens (same as ordinary 40-watt fluorescents) and also list for $1.30.



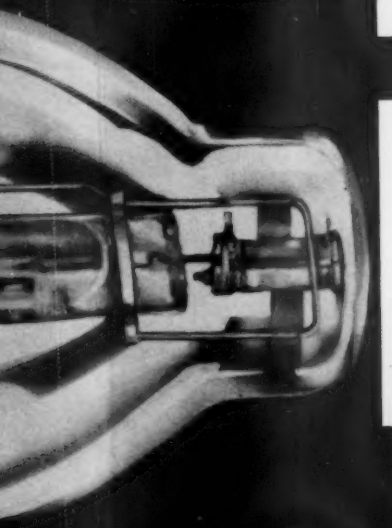

## EXCLUSIVE GENERAL ELECTRIC POWER GROOVE

**The most powerful fluorescent you can buy**—You can save up to 40¢ a square foot on initial investment when you install General Electric Power Groove lamps in a new lighting system. Rated at 15,000 lumens, Power Groove lamps produce more light because those dents bend the arc stream closer to the light-giving phosphors. You actually get 9 feet of light in an 8-foot lamp. And because your Power Groove system will require fewer fixtures to give you the light you want and need, your maintenance people have fewer parts to handle and service.



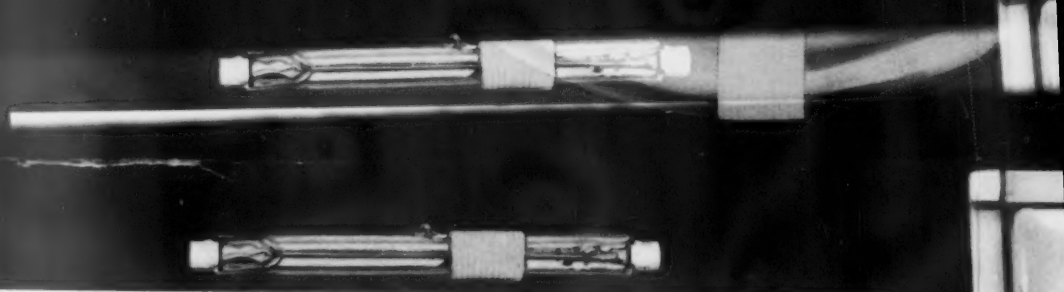

## EXCLUSIVE GENERAL ELECTRIC ALL-WEATHER

**Only fluorescent that shines bright even when temperature drops**—Use the G-E jacketed All-Weather lamp in any open fixture exposed to temperatures below 40°F. Unlike ordinary fluorescents that lose up to 98% of light output when the mercury drops, the All-Weather lamp is designed specifically to operate over a wide range of temperatures—indoors or out. The special glass jacket keeps it from freezing up. For tightly-enclosed, single-lamp luminaires, use its companion lamp, the G-E unjacketed All-Weather.



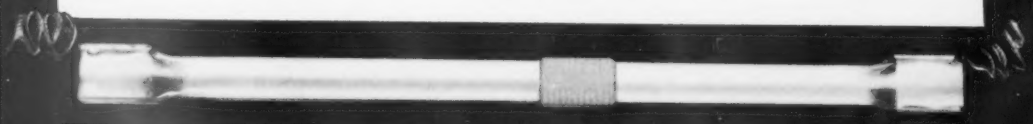
## GENERAL ELECTRIC BONUS LINE MERCURY

**More light—double the useful lamp life**—You get nearly 50% more light after 6000 hours compared with ordinary lamps. The G-E Bonus Line 400-watt lamps also deliver 12,000 hours of useful life compared with 6000 hours for regular 400-watt lamps. And the 700- and 1000-watt sizes last 50% longer than they did before. The secret's in the new arc tube. Instead of blackening as the lamp burns, it actually whitens with use. So you get more of the light longer. You can put these lamps anywhere, too. The special weather-resistant glass resists cracking and breaking when exposed to moisture.



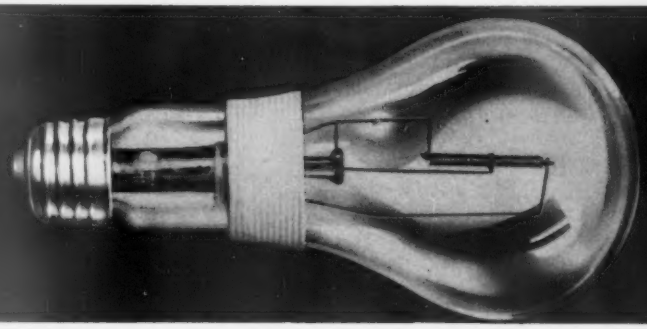
## PENCIL-SIZE GENERAL ELECTRIC QUARTZLINE LAMP

**Packs more light in less space than any other filament lamp**—Here's an incandescent lamp that never grows dim. Mean light output over its 2000-hour life is 99%. It's small—only ⅜" in diameter, up to 10" long. It's efficient—19% more than ordinary 500-watt lamps, 50% more in the 1500-watt size. It's economical—saves you up to 25% on wiring costs on high voltage circuits. It's highly resistant to shock. And its small diameter permits precise beam control.



## GENERAL ELECTRIC QUARTZ INFRARED

**The most powerful infrared heat source on the market today**—This little lamp works wonders as a people-heater. It can also make your heating and drying ovens more compact and more efficient. G-E Quartz Infrared lamps hit 4000°F less than a second after the current is turned on. And there's no "heat hangover"—no danger of over-heating your product—because they lose 80% of their heat within two seconds after you switch them off. They withstand violent thermal shock. A lighted G-E Quartz Infrared lamp won't crack—even if you pour ice water over it.



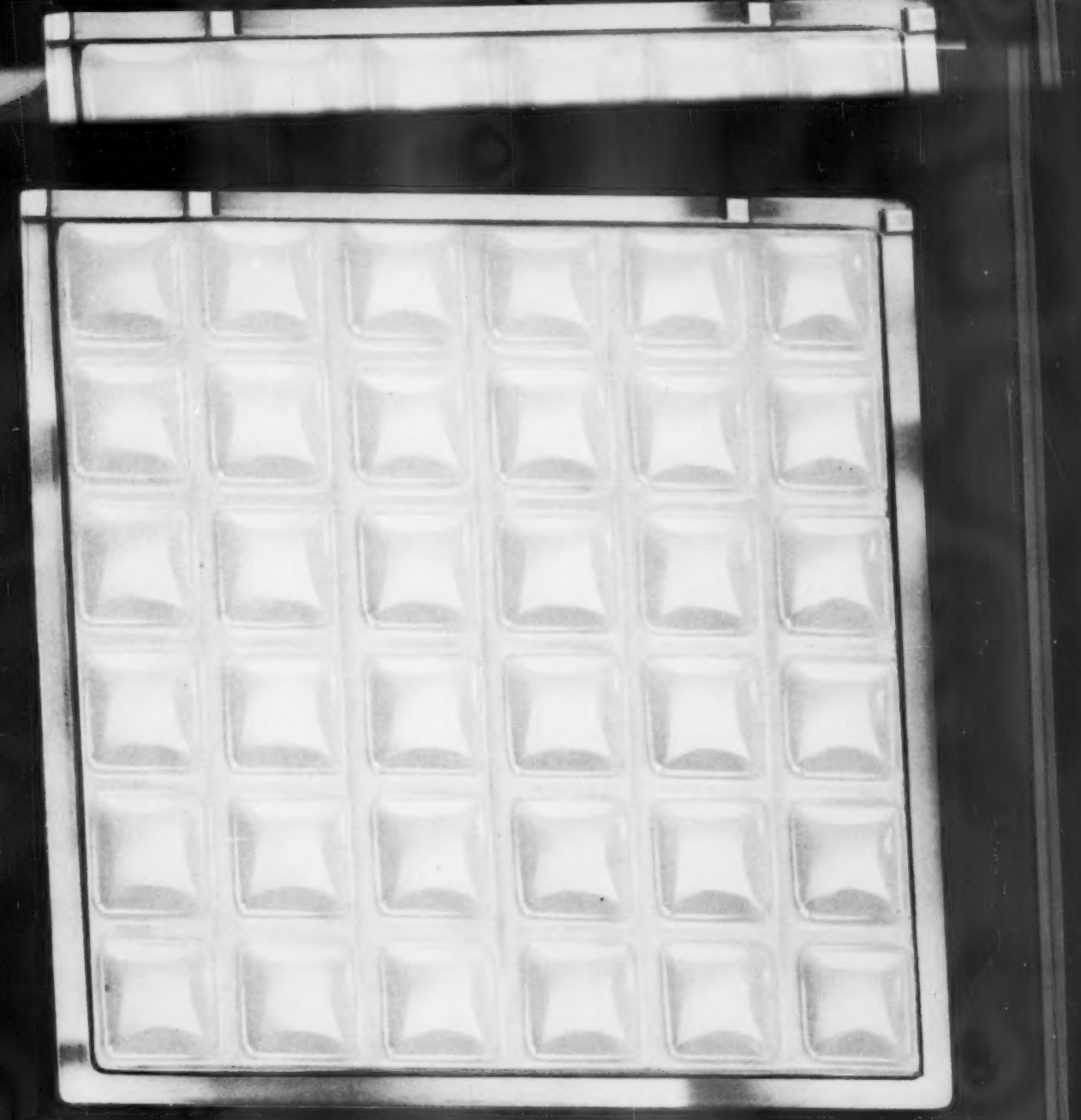
## NEW GENERAL ELECTRIC 200-WATT BONUS INCANDESCENT

**Bonus filament reduces bulb blackening**—Vertical coiled coil filament construction, developed by General Electric, has now been incorporated in the G-E 200-watt incandescent lamp. Designed to give more light initially—more light throughout the life of the lamp, the Bonus filament localizes bulb blackening that otherwise robs you of light that you are paying for. As a result, you now get 5% to 11% more light from every G-E Bonus Incandescent lamp you buy.

**Give**
Elec
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or u
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equi

# See your G-E Lamp Supplier soon for

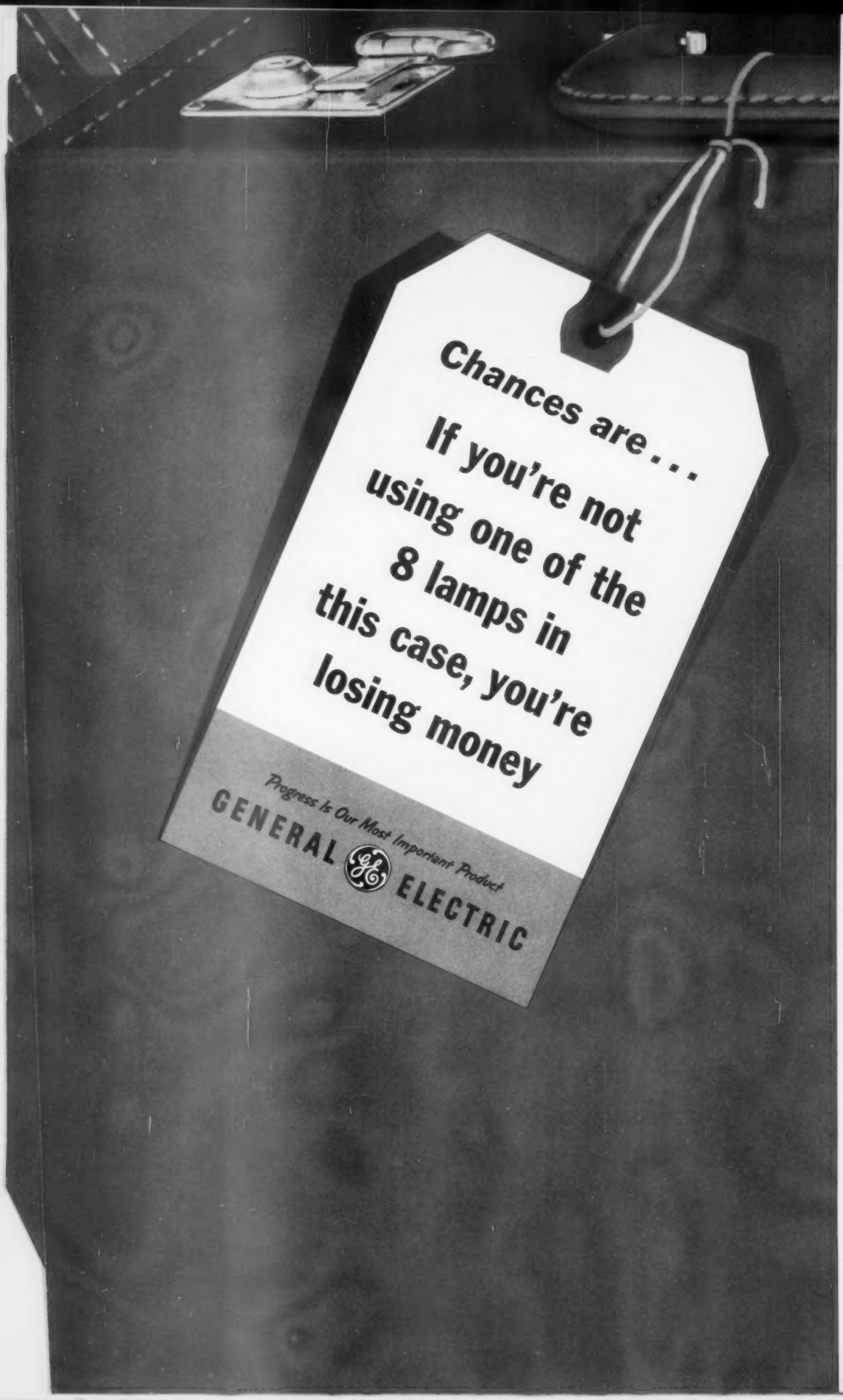


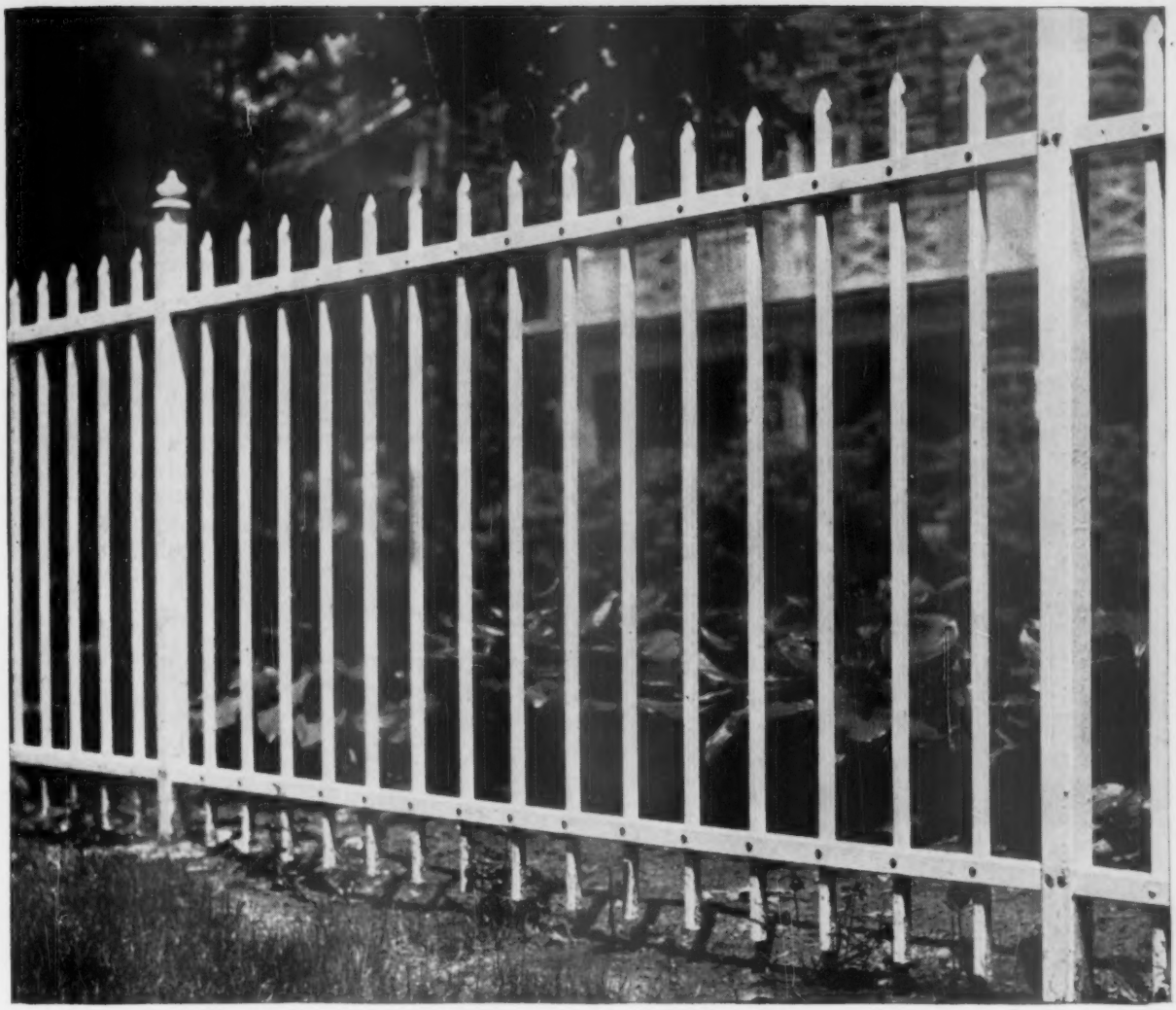


## NEW GENERAL ELECTRIC PANEL FLUORESCENT

**Gives lighting a new dimension and a new design**—Here's the newest of the new General Electric lamps. It packs five feet of fluorescent light into a 12″ square by 1½″ deep shape. This square module fits snugly into modern architectural designs and the waffle pattern is always attractive—lighted or unlighted. Rated at 4800 lumens, the Panel Fluorescent lamp and ballast consume the same amount of electricity as a 100-watt incandescent lamp, yet produce about three times as much light. Lighting equipment manufacturers are developing fixtures to utilize these new lamps.

**n for more information on specific lamps**


Chances are . . .
If you're not
using one of the
8 lamps in
this case, you're
losing money
Progress Is Our Most Important Product
GENERAL ELECTRIC



# New kind of ornamental picket fence possible only with sheet steel

This classic picket fence combines eye-appeal and rugged protection—thanks to the strength and versatility of sheet steel.

Westmoreland Metal Manufacturing Company, Philadelphia, Pa., fabricates the fencing from coils of Bethlehem steel sheet. Posts, pickets, and stringers are formed into round welded tubing which is then pressed into a square cross-section. The machine that cuts the pickets to length simultaneously forms the pointed ends.

Finished inside and out with a tough vinyl coating, this sturdy steel fence holds its elegant appearance for many, many years. If the product you make calls for strength, durability, easy fabrication, and low cost, what material can possibly match sheet steel?

Steel *for Strength . . . Economy . . . Versatility*



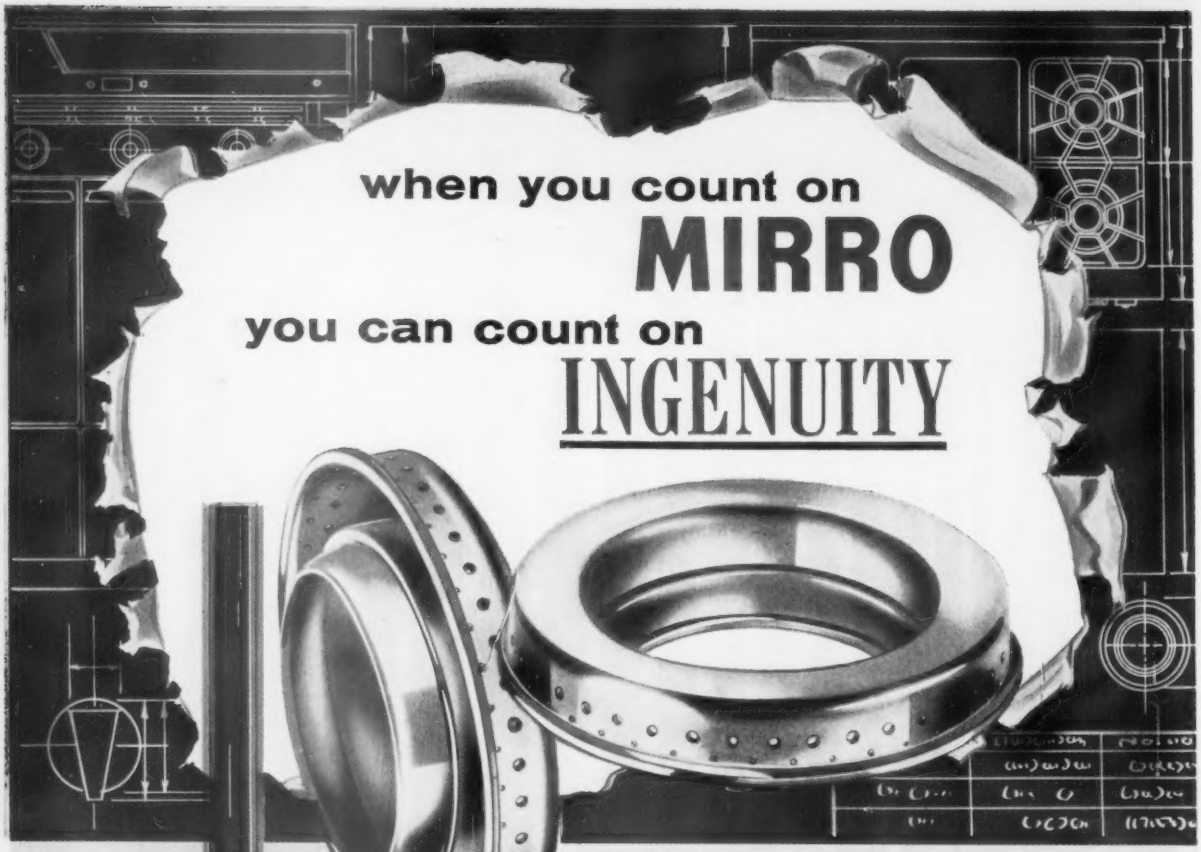
The mill that forms and welds the galvanized steel strip into tubing also squeezes it into the final square cross-section.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa.
*Export Sales:* Bethlehem Steel Export Corporation

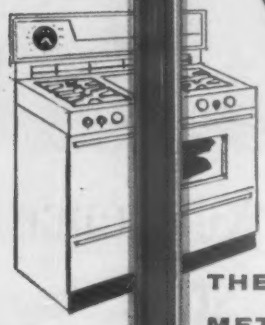
**BETHLEHEM STEEL**

BETHLEHEM STEEL

For More Facts Write No. 220 on Information Card—Last Page



when you count on
MIRRO
you can count on
INGENUITY



THE METAL MEN OF MANITOWOC




COUNT ON MIRRO for any production line requiring aluminum components...appliances, housewares, automotive, or Government contracts.

MIRRO
THE FINEST ALUMINUM

This gas range burner ring, for a manufacturer of '61 Gold Star models, is a case in point. It's a demanding piece to make. Shoulder tolerances must be held within .005" level. Each gas outlet port must direct flame at a *precise* angle. The smaller series of ports asks the theoretically "impossible," by requiring a diameter smaller than the gauge of the metal itself. And it must function consistently in all temperatures, from a dead-cold start to flame-heat.

MIRRO ingenuity devised the dies and draws, noodled out the indexing equipment for series punching of outlet ports, and supplies the completed piece in volume, meeting the tough A.G.A. laboratory standards at a practical price.

There's a whole lot back of a job like this. Years of aluminum know-how. Highly capable engineers and designers. MIRRO's own rolling mill and metallurgical staff. Complete finishing facilities. Rigid quality control. And the constant awareness that pennies saved mean dollars earned, on any high-volume contract.

Count on MIRRO and you can count on *all* of that, backing any contract job you place with us. We'd welcome a chance to estimate or advise.

**MIRRO ALUMINUM COMPANY, MANITOWOC, WISCONSIN**
Fifth Avenue Bldg., New York 10
Merchandise Mart, Chicago 54

For More Facts Write No. 221 on Information Card—Last Page

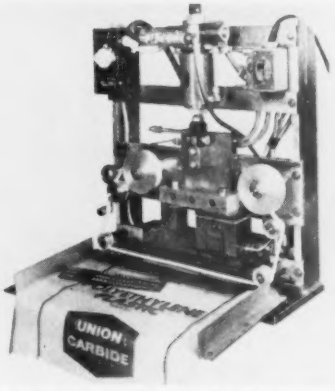
## Products

(*Continued from page* 128)

piece fastener is a molded nylon wedge with ramp-shaped corners for easy tightening and pull up. It will not mar any surface. Installation cost is low because the NY-Q does not require any secondary parts, expensive riveting is eliminated, and there are no special studs with a series of grip lengths. NY-Q sizes No. 6 and 8 will accommodate sheet thicknesses from .050 in. up; the No. 10 size from .060 in. up. Grip range is determined by the length of the screw selected by the user. Clamping strength exceeds comparable steel fasteners, and nylon's outstanding wear resistance guarantees high reusability. **Elastic Stop Nut Corp. of America, 2330 Vauxhall Road, Union, N. J.**

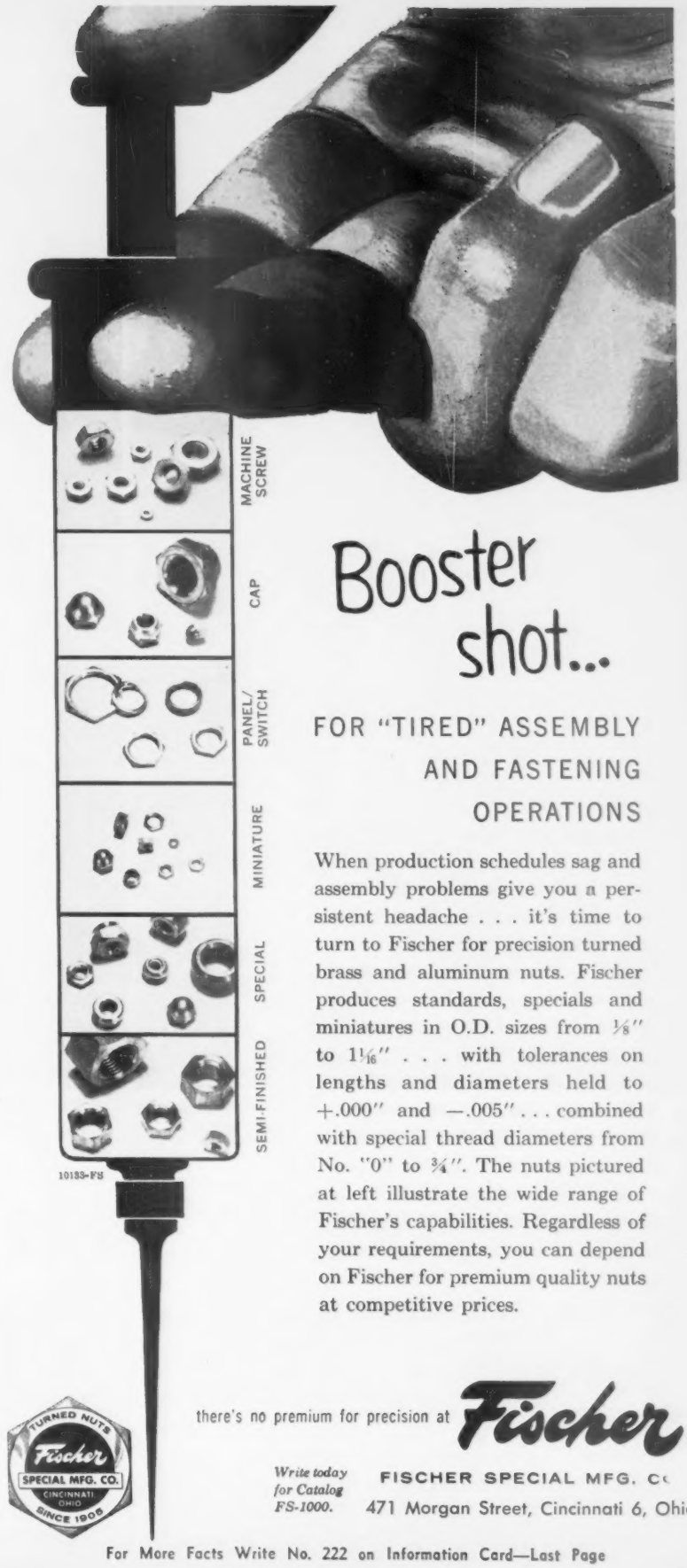
Write No. 34 on Information Card—Last Page

### Hot Transfer Leaf Printer Marks Polyethylene Bags




A hot transfer leaf printer applies sharp, clear, indelible imprints on polyethylene bags. The solenoid-controlled, air-operated unit uses heated metal type and a hot printing head to transfer permanently a thermoplastic die imprint from a roll of tape to the bag. The automatic leaf feed is completely adjustable as is the heat and dwell control. The ability to regulate temperature and time precisely prevents sealing of bag during hot cycle. After insertion into throat of the machine, bag is automatically positioned for printing. **Industrial Marking Equipment Co., Inc., 655 Berriman St., Brooklyn 8, N. Y.**

Write No. 35 on Information Card—Last Page


Booster shot...

FOR "TIRED" ASSEMBLY AND FASTENING OPERATIONS

When production schedules sag and assembly problems give you a persistent headache . . . it's time to turn to Fischer for precision turned brass and aluminum nuts. Fischer produces standards, specials and miniatures in O.D. sizes from ⅛" to 1 1/16" . . . with tolerances on lengths and diameters held to +.000" and —.005" . . . combined with special thread diameters from No. "0" to ¾". The nuts pictured at left illustrate the wide range of Fischer's capabilities. Regardless of your requirements, you can depend on Fischer for premium quality nuts at competitive prices.

there's no premium for precision at Fischer

*Write today for Catalog FS-1000.*

FISCHER SPECIAL MFG. CO.
471 Morgan Street, Cincinnati 6, Ohio

TURNED NUTS Fischer SPECIAL MFG. CO. CINCINNATI OHIO SINCE 1905

For More Facts Write No. 222 on Information Card—Last Page



**Purchasing Agent,** ". . . purchasing fewer types of lubricants in greater volume lowers our costs."



**Superintendent,** ". . . simplifying anything, including lubrication, pays off in improved efficiency."

# GULF MAKES THINGS RUN BETTER

These four men understand the real value of a simplified lubrication program. *Why?* Because a minimum number of lubricants makes their jobs a lot easier.

In some plants, Gulf engineers have found more than *three* times the number of lubes actually needed for efficient operation. This means three times as many ordering, billing, stocking and handling problems. And it also means three times as many chances for human errors.

Examples: One large electrical appliance manufacturer slashed lubricants from dozens to just 6. In addition, a well-known paper company pared lube brands from 39 to 13.

Here's what Gulf engineers can do for you: (1) they can relate their experiences with hundreds of lubricating problems to *your* specific needs, and (2) they can recommend these versatile Gulf® lubricants—Gulf Harmony® Oil, Gulfcrown® Grease



**Plant Engineer,** ". . . a simplified lube inventory means reduced paperwork, fewer handling and stocking problems."



**Oiler,** ". . . fewer lubes mean less chance for error, and I get the job done faster."

# THROUGH SIMPLIFIED LUBRICATION

and Gulf E.P. Lubricants.

Perhaps there are opportunities in *your* plant for simplified lubrication. A Gulf Sales Engineer is available to help you find them. Contact him at your nearest Gulf office. Or, write today for pamphlets on Gulf multipurpose lubes.

GULF

**GULF OIL CORPORATION**
Dept. DM, Gulf Building
Houston 2, Texas

Send me booklets on Gulf multipurpose lubricants.

Name_____

Company_____

Title_____

City_____ Zone____ State_____

For More Facts Write No. 223 on Information Card—Last Page

# "Call FOSTER... they'll ship Switch Material PLUS"



Right! L. B. Foster Company will ship switch material "*plus*" any standard rail section (new or relaying), crane rail and accessories, and track tools —everything you need, at lowest possible costs. Foster is your fastest, most dependable source for every rail and track item required for industrial sidings or in-plant trackage.

One more "*plus*": the advantage of lower freight rates from Foster's nationwide warehouses and stocking points. To help select materials best suited to your job, call the Foster Track Specialist.

Write **L. B. FOSTER CO.** for new catalog PA-10

**PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4**
**HOUSTON 2 • LOS ANGELES 5 • ATLANTA 8**

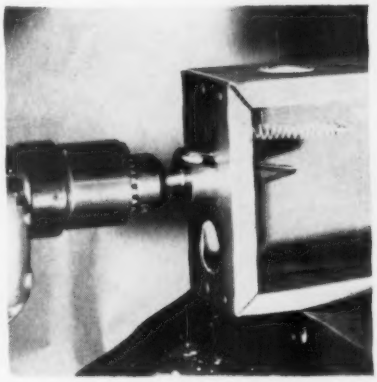


***Faster From Foster***
***PIPE • PILING • RAIL***

For More Facts Write No. 224 on Information Card—Last Page


## Products

### Cone Shaped Tool Speeds Sheet Metal Drilling



A recently developed cone drill makes possible lower tool costs, fewer tool changes and elimination of separate finishing steps in some drilling operations. Single drill produces wide variety of hole diameters in metal, plastic or any other relatively thin material. Tool change time and need for stocking a variety of drill sizes are eliminated. It drills any hole size from ¼ in. to 1¼ in. Cone drill eliminates circular back sawing or knockout punching in sheet metal work. It has 7/32 in. diameter drill point, so no center drilling or punching is necessary. It can be used in power tools of ½ in., drill capacity, in drill presses and similar machines. **Scully-Jones and Co., 1989 S. Rockwell St., Chicago, Ill.**

Write No. 36 on Information Card—Last Page

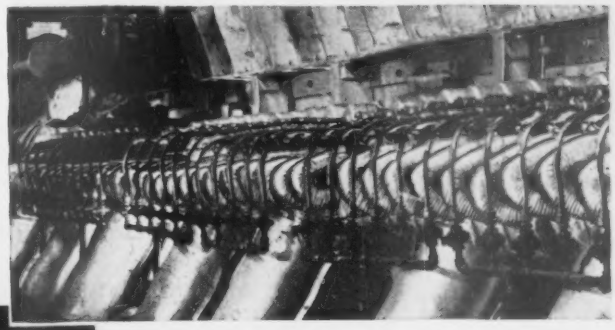
### Inherent Protectors Fit Wide Range of Motors

An inherent protector that may be installed in the end windings or stator slots of electric motors provides built-in protection against overheating. The CR124 protector will fit integral hp motors through 200 hp, 600 volts maximum, and under some conditions can protect larger motors. The units may also be used as bearing temperature protectors in pumps or motors. In three-phase applications, three protectors are used, one for each phase. Advantages include: motor temperature is measured at wind-

(*Please turn to page* 144)



SAVE ON REPLACEMENT of valves, fittings, flanges by applying flexible connectors to pressure lines.



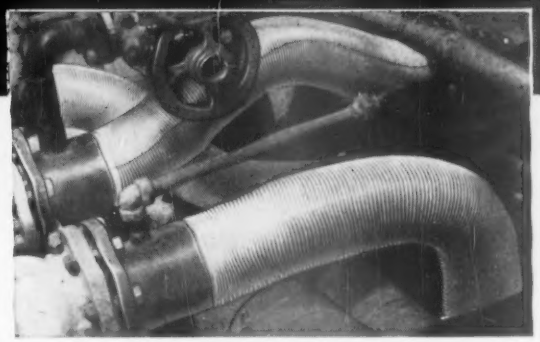
SAVE ON BREAKDOWNS, LOST MAN HOURS due to pipe motion in conveying high temperature media. Use metal hose.

# METAL HOSE SAVES MONEY

. . . and will for you, in hundreds of places throughout your plant. Your Flexonics PMS Distributor can show you these money-saving applications.



SAVE TIME, INCREASE EFFICIENCY by using metal hose as a vacuum or exhaust line on standard or special production jobs.



SAVE INSTALLATION COSTS, avoid damage by using metal hose in confined piping space.

Every Piping Problem . . . from pump shaft bearing wear to valve and pipe fitting failure can be prevented *readily* with the proper application of metal hose. Thermal expansion and contraction . . . vibration and shock . . . the problem of piping in confined areas – all can be answered with metal hose. Your Flexonics PMS distributor is a Pipe Motion Specialist . . . let him appraise your pipe motion problems and discuss practical improvements with you. He carries a complete stock of metal hose and fittings . . . can fabricate complete assemblies to your requirements.

FLEXONICS DISTRIBUTOR **PMS** PIPE MOTION SPECIALIST

# Flexonics

DIVISION OF CALUMET & HECLA, INC.
390 East Devon Avenue • Bartlett, Illinois

FLEXIBLE METAL and SYNTHETIC HOSE
EXPANSION JOINTS
BELLOWS • SPECIAL TUBULAR ASSEMBLIES

In CANADA
FLEXONICS CORPORATION OF CANADA, LTD.
BRAMPTON, ONTARIO

ATTACH TO YOUR LETTERHEAD



Flexonics
390 East Devon
Bartlett, Illinois

Send free copy of
Flexonics Metal Hose
Product and Design Guide. Also send the name of your local distributor.

For More Facts Write No. 225 on Information Card—Last Page



"THIS LUBRICANT SAVES 7 TIMES ITS COST IN PRODUCING SHOES"

says: WOLVERINE
Shoe and Tanning Corp.

"We use LUBRIPLATE No. 100 for lubricating the chains that drive the paddle wheels which turn hides immersed in solution. The solution is sometimes acid, sometimes caustic. Until we tried LUBRIPLATE, chain life was only about one year. After a two year test, applying LUBRIPLATE to the chains every two weeks, it appears that for every dollar we invested in LUBRIPLATE, we have saved seven dollars in chains!"

**REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.**

LUBRIPLATE is available in grease and fluid densities for every purpose . . . LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.




For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.




For More Facts Write No. 226
on Information Card—Last Page


## Products

(*Continued from page* 142)

ings, device anticipates temperature on fast rise, external temperatures have no effect on protection, nuisance tripping is eliminated, motor service factor may be used to maximum, snap-action contact eliminates need for auxiliary relay in most circuits. **General Electric Co., Schenectady 5, N.Y.**

Write No. 37 on Information Card—Last Page

### Heavy Duty Paper Towels Are Reusable



Disposable heavy-duty paper shop towels are designed to be reusable. Wood cellulose product is lint free and has high tensile strength and quick absorbency. Recommended for wiping bearings, cleaning gears, polishing gauges, soaking up oil spillage, etc., when saturated with solvent towel may also be used to clean machine tools or to pick up chips and shavings. Cost is said to be half as much as rags or laundry bill for cloth towels. **Kimberly-Clark Corp., Ind. Products Div., Neenah, Wisc.**

Write No. 38 on Information Card—Last Page



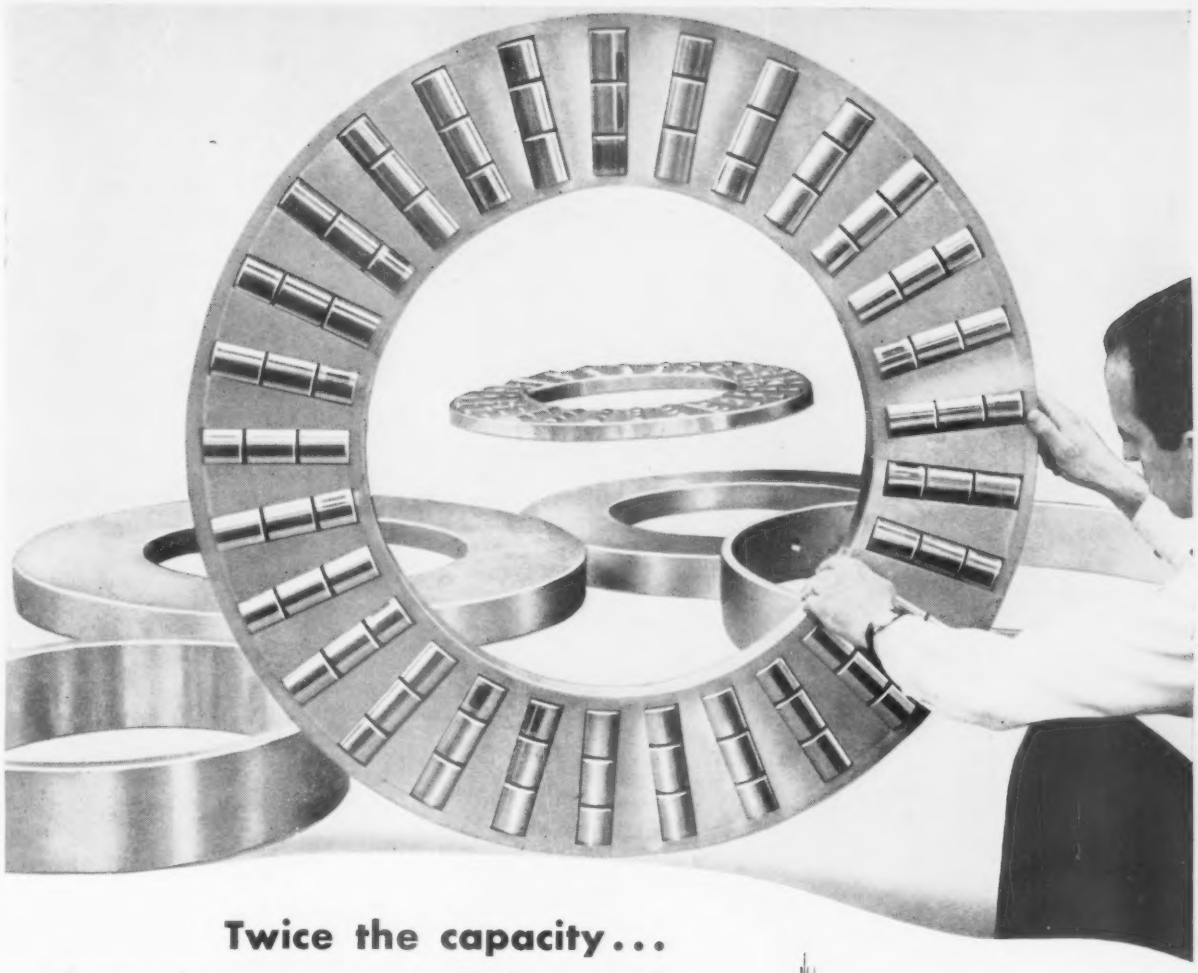


THE 52100 HOUSE
INDUCTION • CONSUMABLE • LEADED

PETERSON STEELS, INC.

Union, N. J. · Wethersfield, Conn.
Detroit, Mich. · Melrose Park, Ill.

For More Facts Write No. 227
on Information Card—Last Page



## Twice the capacity... without increasing radial space!

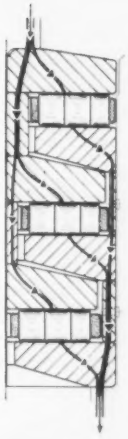
# ROLLWAY®

## TANDEM THRUST BEARINGS

Rollway Tandem Thrust Bearings like the one shown here are continuing to prove themselves in long, trouble-free performance. This 5,000-pounder is built into a giant plastics extruder at one of the world's largest chemical plants, and provides a dynamic capacity of over *4.8 million pounds!*

Precision built, it has 165 crowned cylindrical rollers mounted in two tandem stages. Distributing the load axially, it permits reduction in the radial space requirement to house a bearing of comparable thrust capacity.

*Whatever* your application, Rollway has a thrust bearing that will do the job better. Ask for catalog PT-659.



Arrows indicate path of thrust load in tandem-type bearing.

Drawing at left illustrates *three-stage* design —one of the larger sizes in the Rollway-originated tandem thrust series. It is included in the broad range of Rollway thrust bearings that offers seven *standard* cataloged types . . . plus special - purpose types made to your order.

**ROLLWAY®**
**BEARINGS**
COMPLETE LINE OF RADIAL AND THRUST CYLINDRICAL ROLLER BEARINGS

**ENGINEERING OFFICES:** Syracuse • Boston • Chicago • Detroit • Toronto • Pittsburgh • Cleveland • Seattle • Houston • Philadelphia • LosAngeles • SanFrancisco

For More Facts Write No. 228 on Information Card—Last Page

# Somewhere near you...

there's a man and a forklift . . . not an ordinary man . . . not an ordinary forklift. The man is an experienced Clark service technician. The truck is a Clarklift . . . sometimes misused, sometimes abused beyond reasonable limits. Still it keeps lifting, hauling, storing.

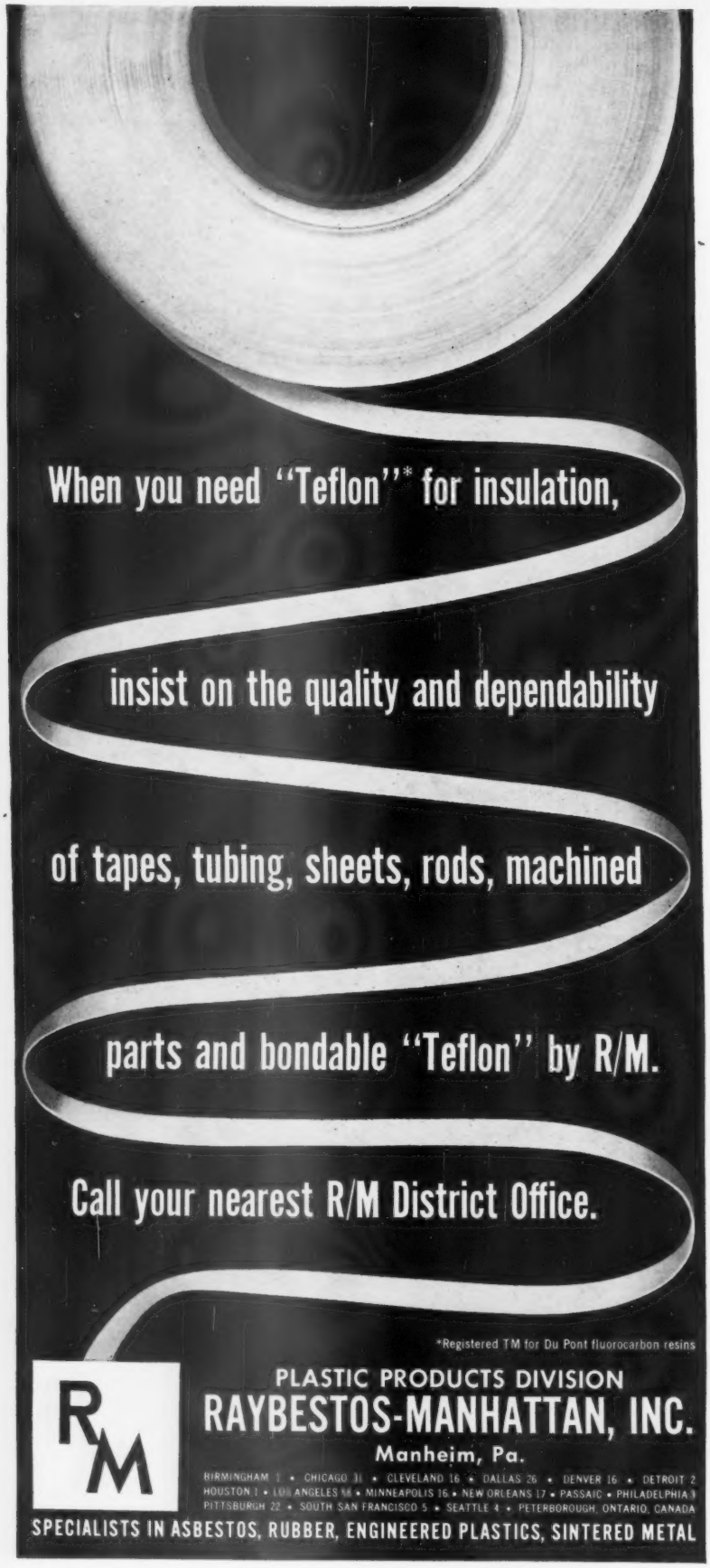
The man is adding the priceless ingredient to this workhorse of the warehouse. The ingredient is service . . . Clark Planned Maintenance at the job site, Genuine Clark Original Equipment Replacement Parts. Service goes with the sale of every Clarklift whether it be in San Diego or Montreal; Collier City, Florida or Deep Creek, Washington. It's the added value you can measure. It's the best reason in the world to buy Clark.

CLARK® EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek, Michigan




*For complete information*
*about Clark Added Value Service*
*circle 77*
*on reader service card*




For More Facts Write No. 230 on Information Card—Last Page


## Products

### High Speed Unit Eases Heavy Strapping Jobs



A flexible, high speed strapping unit that enables one man to strap giant size containers unassisted is fully adjustable to production line changes. The costly problem of changing production line strapping units for a product change has been practically eliminated. Custom built to customer's requirements, machine is designed for easy on-the-spot alteration to almost any future production line requirement. Practically unlimited as to the size of package it can strap, the Model 480 unit will handle all sizes of flat strapping from 3/8" x .015" to 3/4" x .023", many sizes of oval strapping, plus 100% rayon strapping. **A. J. Gerrard & Co., Des Plains, Ill.**

Write No. 39 on Information Card—Last Page

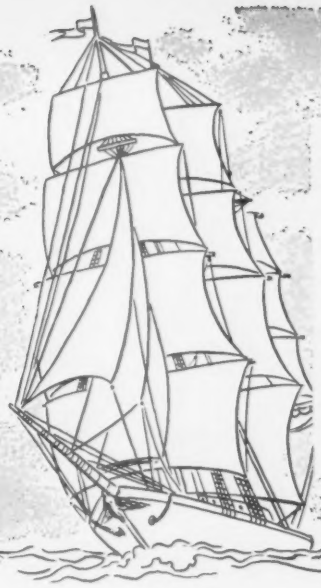
### Airless Spray System Fits 5-Gallon Cans

A low-cost, portable airless spray painting system that fits all 5-gallon paint containers will save up to 50% on labor and materials, when used in place of conventional painting methods, according to the manufacturer. In addition, the unit is said to improve the quality of finish by virtually eliminating fog, overspray and material "bounce-back", and enabling the operator to apply the finish with pin-point accuracy. The airless spray system is recommended for use with primers, lacquers, enamels, stains and varnishes on a wide variety

(*Please turn to page* 150)

# Why Rust-Oleum is different—

*and what this difference, backed by 35 years of industry proof, means to you!*





*A Sea Captain developed it . . . Industry proved it!*

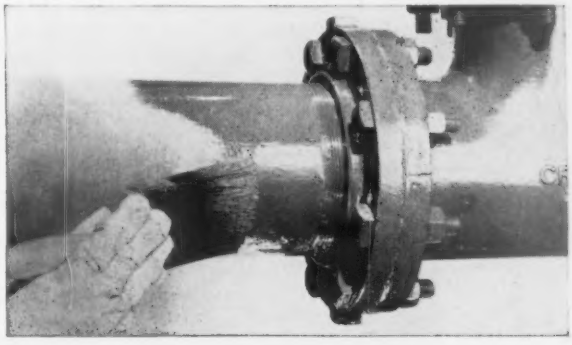
The original Rust-Oleum formula was developed nearly fifty years ago by Sea Captain Robert Fergusson, who became intrigued with the rust-stopping qualities of fish oil early in his career. Creating a *special treatment* for the fish oil, he used the *specially-processed fish oil* as the vehicle in combination with fine rust-inhibiting pigments. The result? A coating that actually *stopped rust* when applied directly over sound rusted surfaces, after scraping and wirebrushing to remove rust scale and loose rust. Possible, because the *specially-processed* fish oil penetrated the rust to bare metal. This was the birth of Rust-Oleum's *exclusive* 769 Damp-Proof Red Primer.

## PROVED THROUGHOUT INDUSTRY FOR OVER 35 YEARS

Today, Rust-Oleum in its many systems and colors, has been proved throughout industry for over thirty-five years. This proof by leading industrial users is your assurance of savings in time, money, and metal. Economies made possible by the fact that Rust-Oleum 769 Damp-Proof Red Primer goes right over the sound rusted metal—usually eliminating costly surface preparations. And Rust-Oleum, in its various systems, resists rain, sun, fumes, heat, weathering, chemicals, etc., for lasting beauty over the years.

## RUST-OLEUM NEW COLOR HORIZONS SYSTEM

The Rust-Oleum New Color Horizons System introduces a new coating concept to industry. It combines four important factors: (1) the ability to stop rust, (2) smart, modern color harmony, (3) the durability to last and last, (4) ease of application that saves time, money, and metal. See how this system can bring lasting beauty to your plant, machinery, equipment, pipes, tanks, structural steel, fences, etc. Write for complete information or contact your nearby Rust-Oleum Industrial Distributor. He maintains complete stocks for prompt service.



# RUST-OLEUM®




There are imitations, but only *one* Rust-Oleum. It is distinctive as your own fingerprint.

STOPS RUST!®

ATTACH TO YOUR LETTERHEAD

**Rust-Oleum Corporation**
2550 Oakton St., Evanston, Illinois

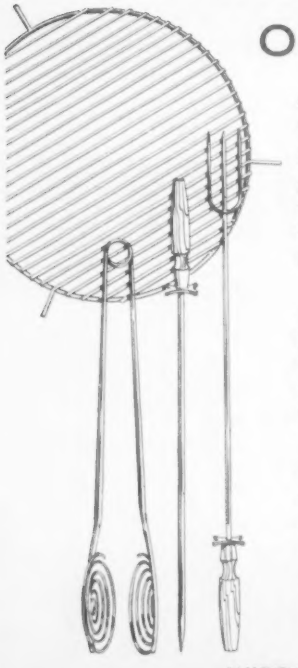
*Please send me the following at no cost or obligation:*

- ☐ New Color Horizons Systems Catalog featuring 110 actual color standards and 69 photo applications.
- ☐ Free test sample of Rust-Oleum 769 Damp-Proof Red Primer to be applied over sound rusted surface.
- ☐ Results of radioactive tracing study on Rust-Oleum fish oil penetration.

For More Facts Write No. 231 on Information Card—Last Page




*Example:* FINER "TOOLS" FOR OUTDOOR LIVING



There are no finer grills, implements or "tools" for outdoor living than those made from Continental Wire. There's a temper, gage and finish for almost any product—with smooth clean surface for fast production, and quality to take the forming you require for your product.

Your product may be entirely different—hardware for venetian blinds, or ball bearings, or automotive parts. For a wide variety of applications you can get just the right wire at Continental, in the temper, size, and steel analysis you require.

For your wire requirements in low, medium low, medium high or high carbon steels, round or special shaped, in many different coatings, drop us a line. Our mill technicians have solved hundreds of wire problems, and will be happy to give you the benefit of their experience. Write for free copy of the Continental Wire Manual.

*WIRE SPECIALISTS FOR OVER HALF A CENTURY*

CONTINENTAL STEEL
CORPORATION · KOKOMO · INDIANA

PRODUCERS OF: Manufacturer's Wire in many sizes, tempers, and finishes, including Galvanized, KOKOTE®, BRYTITE®, FLAME SEALED®, Coppered, Tinned, Annealed, Liquor-Finished, Bright and special shaped wire. Also Welded Wire Reinforcing and Galvanized Fabric. Nails, Continental Chain Link Fence and other products.

For More Facts Write No. 232 on Information Card—Last Page


## Products

(*Continued from page* 148)

of interior and exterior work, including short run production finishing, maintenance, contract painting, and structural steel.



Unit is sealed against dirt and is equipped with 3″ air motor for operation with any 1½ hp compressor. **Aro Equip Corp., Industrial Div., Bryan, Ohio.**

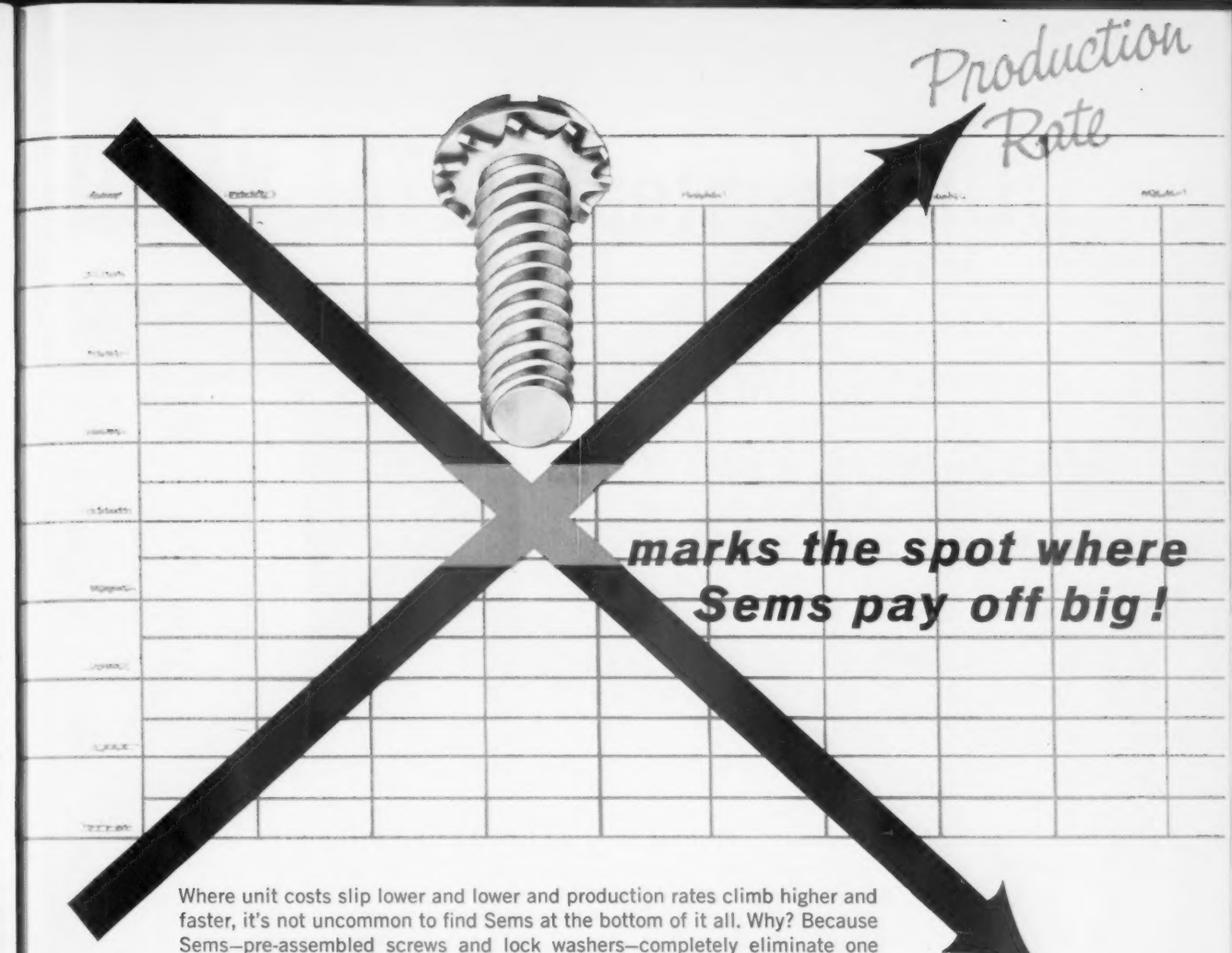
Write No. 40 on Information Card—Last Page

### Packaged Stair Unit Speeds Personnel Travel



A packaged moving stairway with reversible two-way operation provides safe, fast and economical transportation of workers between floors of industrial plants. Reversible feature eliminates need for separate "up" and "down" units, and unit saves by running only when needed. Compact, preassembled unit can be installed quickly and at low cost. It accomodates up to 450 persons per hour. **Autostair Sales, 1533 W. Altgeld St., Chicago 14, Ill.**

Write No. 41 on Information Card—Last Page




## marks the spot where Sems pay off big!

Where unit costs slip lower and lower and production rates climb higher and faster, it's not uncommon to find Sems at the bottom of it all. Why? Because Sems—pre-assembled screws and lock washers—completely eliminate one step and make others much more efficient. For example, washers will never be forgotten or mismatched, assembly quality improves, you can use hopper-fed driving and there's a Sems for every need. Put us on the spot, we'll be happy to show you how it can pay off big with Sems!

**SEMS AVAILABLE WITH GENUINE SHAKEPROOF® *LIVE ACTION* LOCK WASHERS.** Exclusive 3-way locking action of Shakeproof Live Action Lock Washers is available to Sems users. Just specify Shakeproof Lock Washers on Sems.

T.M.

itw **Sems** pre-assembled screw and lock washer

SEMS IS A DEVELOPMENT OF ILLINOIS TOOL WORKS INC., CHICAGO

### SEMS SERVICE FROM 42 SOURCES . . . NATIONWIDE SO SEMS SERVICE IS ALWAYS NEAR AT HAND

ACCURATE THREADED FASTENERS, INC.
Chicago, Illinois

AMERICAN SCREW COMPANY
Willimantic, Connecticut

ANCHOR FASTENERS, INC.
Waterbury 20, Connecticut
Cleveland, Ohio

THE BLAKE & JOHNSON CO.
Waterville 14, Connecticut

BUTCHER & HART MFG. CO.
Altoona, Pennsylvania

CALIFORNIA FASTENERS, INC.
Emeryville 8, California

CENTRAL SCREW COMPANY
Chicago 9, Illinois
Frankfort, Kentucky
Keene, New Hampshire

THE CLEVELAND CAP SCREW CO.
Cleveland 29, Ohio

CONTINENTAL SCREW CO.
New Bedford, Massachusetts

CRESCENT SCREW PROD. CO.
Rockford, Illinois

EATON MANUFACTURING CO.
RELIANCE DIVISION
Massillon, Ohio

ECONOMY SCREW CORPORATION
Des Plaines, Illinois

ELCO TOOL & SCREW CORP.
Rockford, Illinois

FEDERAL SCREW WORKS
Detroit 10, Michigan

GREAT LAKES SCREW CORPORATION
Chicago 27, Illinois

THE H. M. HARPER COMPANY
Morton Grove, Illinois

HARVEY HUBBELL, INC.
Bridgeport 2, Connecticut

INDIANA METAL PRODUCTS COMPANY, DIVISION, TEXTRON INDUSTRIES, INC.
Rochester, Indiana

LAKE ERIE SCREW CORPORATION
Cleveland, Ohio

LAMSON & SESSIONS COMPANY
Cleveland 9, Ohio

LEHIGH METAL PRODUCTS CORP.
Cambridge, Massachusetts

MID-AMERICA FASTENERS, INC.
Franklin Park, Illinois

MIDLAND SCREW CORPORATION
Chicago 32, Illinois

NATIONAL LOCK COMPANY
Rockford, Illinois

THE NATIONAL SCREW & MFG. COMPANY
Cleveland 4, Ohio
Los Angeles 22, California

PARKER-KALON DIVISION OF GENERAL AMERICAN TRANSPORTATION CORP.
Clifton, New Jersey

PHEOLL MANUFACTURING COMPANY, INC.
Chicago 50, Illinois

PROGRESSIVE MFG. DIV.
PHEOLL OF NEW ENGLAND, INC.
Torrington, Connecticut

REED & PRINCE MANUFACTURING COMPANY
Worcester 1, Massachusetts

REPUBLIC STEEL CORPORATION
Cleveland 13, Ohio

RING SCREW WORKS
Warren, Michigan

ROCKFORD SCREW PRODUCTS COMPANY
Rockford, Illinois

RUSSELL, BURDSALL & WARD BOLT & NUT CO.
Port Chester, New York
Los Angeles, California
Rock Falls, Illinois

SCREW & BOLT CORPORATION OF AMERICA SOUTHINGTON HARDWARE DIVISION
Southington, Conn.

SHEFFIELD DIVISION
ARMCO STEEL CORPORATION
Kansas City, Missouri

SEMS DIVISION
TEXTRON INDUSTRIES, INC.
Rockford, Illinois

SHAKEPROOF DIVISION
ILLINOIS TOOL WORKS, INC.
Elgin, Illinois

THOMPSON-BREMER & CO.
Chicago 22, Illinois

TRIPLEX SCREW CO.
Cleveland 9, Ohio

UNITED SCREW & BOLT CORPORATION
Chicago 8, Illinois

UNIVERSAL SCREW CO.
Evanston, Illinois

WALES-BEECH CORPORATION
Rockford, Illinois

For information on SEMS sources in Canada, Contact:

CANADA ILLINOIS TOOLS LTD.
SHAKEPROOF—FASTEX DIVISION
Toronto, Ont., Canada

# The greatest TOTAL VALUE

## product values

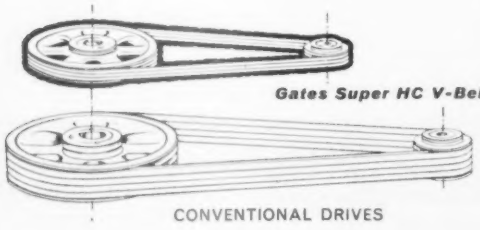
## Gates Super HC V-Belt Drives

Gates Super HC Drives are compact, money-saving and weight-saving—the first and most advanced high capacity drives.

Because of exclusive design features, Gates Super HC V-Belts handle up to 3 times the power of conventional V-belts in the same space—or they can often handle the required horsepower in about half the space. Fewer belts are needed and sheaves can be smaller and lighter weight.

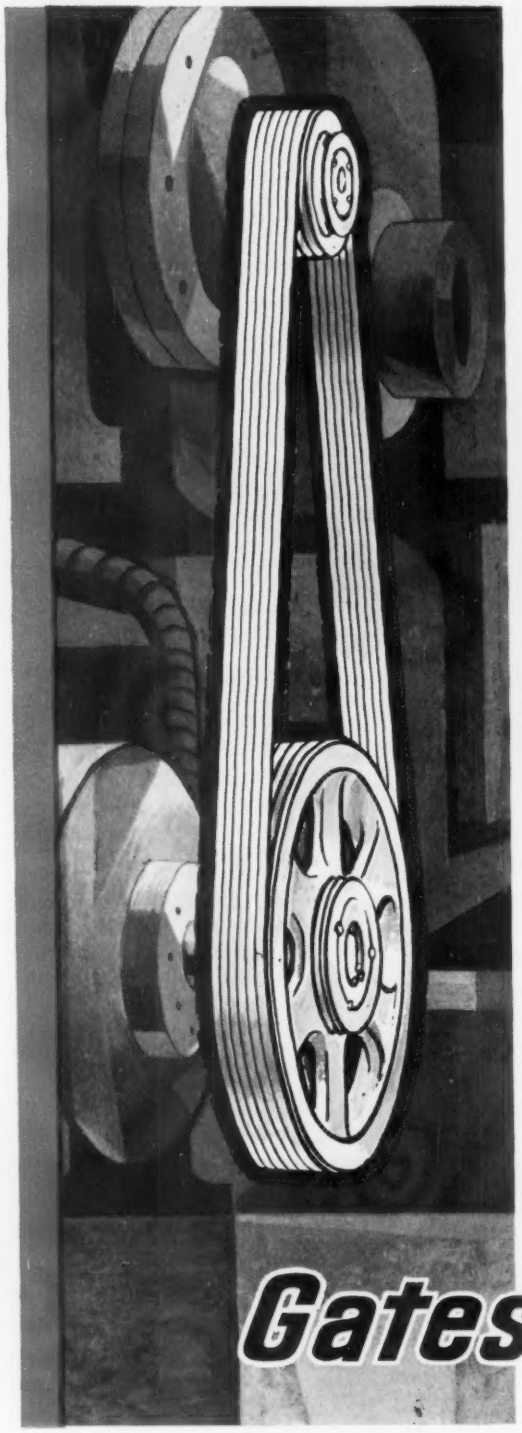
As a result, initial drive cost is less. Bearing loads are reduced, increasing bearing life. Guards and machine housings can be smaller, shafts shorter. Machines can be more compact, increasing aisle space. The drive can operate at belt speeds up to 6000 ft./min. without dynamic balancing. This permits use of lower cost, higher speed motors and possible elimination of jackshafts.

Manufacturers, everywhere, have standardized upon Gates Super HC Drives. They are your best assurance that your power transmission units will remain up-to-date for many years to come.



*Gates Super HC V-Belt Drives*

CONVENTIONAL DRIVES



# for your drive dollar

## added values

**When you buy Gates Super HC Drives, you receive a great many added values for your purchasing dollar—important values beyond product quality and long service life.**



**1. Local technical and design service.** Gates fieldmen are located in all sections of the country. The man near you has had long, intensive training and experience in drive design. Be sure to call him in to give expert design aid. He will also be glad to give you comprehensive product and design catalogs and complete technical information on the Super HC Drive or any other Gates Industrial Product.

**2. Local availability everywhere—fast delivery.** Gates distributors, located in all parts of the country and throughout the world, have large stocks of V-belts and sheaves on hand, backed by Gates Stocking Service Centers in every major industrial area. This means that you always get quick delivery, day or night, of Gates Super HC V-Belts and Sheaves, or other Gates Products, from a reliable local source.

**3. Gates continuing program of *Specialized* Research.** More than two million hours of belt testing are run annually in the world's largest belt-testing laboratory at Gates. This is a vital part of the basic research behind the development of the Super HC V-Belt. It is this continuing research that gives you assurance that the Gates Drives you purchase lead the V-belt industry in design—the most advanced drives you can buy.

**Ask your nearby Gates Distributor for complete information about the great total value that you receive when you buy Gates Super HC High Capacity V-Belt Drives. Call him today.**

Gates®

*Building the future on 50 years of progress*

# Super HC V-Belt Drives

The Gates Rubber Company, Denver, Colorado BP-53-A

For More Facts Write No. 234 on Information Card—Last Page



*Shell Tellus Oils are refined and formulated to meet exacting hydraulic service requirements, such as in this forming machine.*

PHOTO COURTESY ATLANTIC PLASTICS INC., STAMFORD, CONNECTICUT

# BULLETIN:

## Shell provides a quick 6-point check list for hydraulic oils: Use it to pick the right oil for your needs

**Selecting the proper hydraulic fluid for your equipment can be one of your most important decisions. And it can pay off in many ways. Less down time. Lower cost per unit. Longer equipment life.**

**Here are six bench marks to help you pick the best hydraulic oil tor your plant requirements.**

**1. Does it have good oxidation stability?** Oxidized hydraulic oil can form gums, lacquers and other deposits which may foul moving parts. Shell Tellus Oils are carefully refined to remove unstable, sludge-forming components, then fortified with a Shell-developed oxidation inhibitor.

**2. Will it resist foaming and emulsification?** Pump chatter and erratic operation are often the result of pump cavitation, brought on by oil foaming. Tellus® Oils contain powerful additives to help prevent foaming.

They also contain a selected inhibitor to combat effects of moisture that might be in the system.

**3. Does it fight rust and corrosion?** It is difficult to exclude all moisture from a hydraulic system. And moisture can form troublesome rust. Shell Tellus Oils have been carefully compounded to resist corrosion.

**4. What are its lubrication qualities in continuous service?** Shell Tellus Oils form a clinging, oily film on mating metal surfaces. This maintains a constant guard against wear.

**5. How does it react to temperature changes?** This is a key factor in the performance of hydraulic equipment. Careful selection of the proper viscosity grade of Tellus assures satisfactory operation of your system over its entire temperature range.

**6. Is it available in several viscosity grades?** Shell Tellus Oils are available in a broad range of viscosity grades. There's a special grade for virtually every hydraulic requirement.

Ask your Shell Industrial Products Representative for facts on Tellus Oils. Or write: Shell Oil Co., 50 West 50th St., New York 20, N. Y.

**A message to manufacturers of hydraulic equipment**

There is a Shell Tellus Oil suited for your equipment.

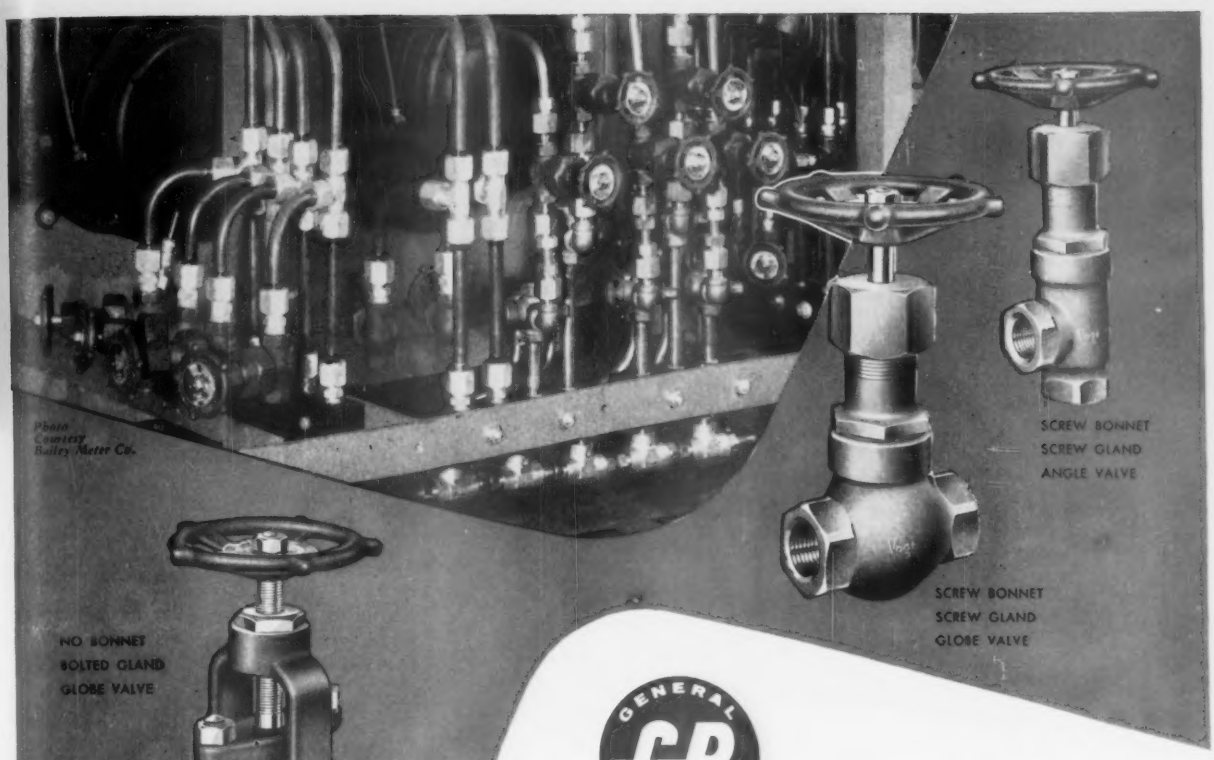
**1.** Your customers can get Tellus Oils at Shell depots everywhere. Readily available throughout the world.

**2.** Quality is consistently high. Tellus always delivers top performance.

SHELL

**A BULLETIN FROM SHELL**
**—where 1,997 scientists are working to provide better products for industry**

For More Facts Write No. 235 on Information Card—Last Page







GENERAL GP PURPOSE

# FORGED STEEL *INTEGRAL SEAT* METER AND GAUGE LINE VALVES

## Union Bonnet, Screw Bonnet and No Bonnet Types




Service proved Vogt GP Forged steel valves are the choice of leading meter and gauge Manufacturers for top performance and unfailing reliability.

They are available in sizes from 1/4" to 2" of carbon steel for general purpose duty and of all-stainless where highly corrosive liquids are involved. All stems are one-piece 13% Chrome Stainless Steel with fine pitch threads for accurate regulation of flow. Special packing is furnished when specified.

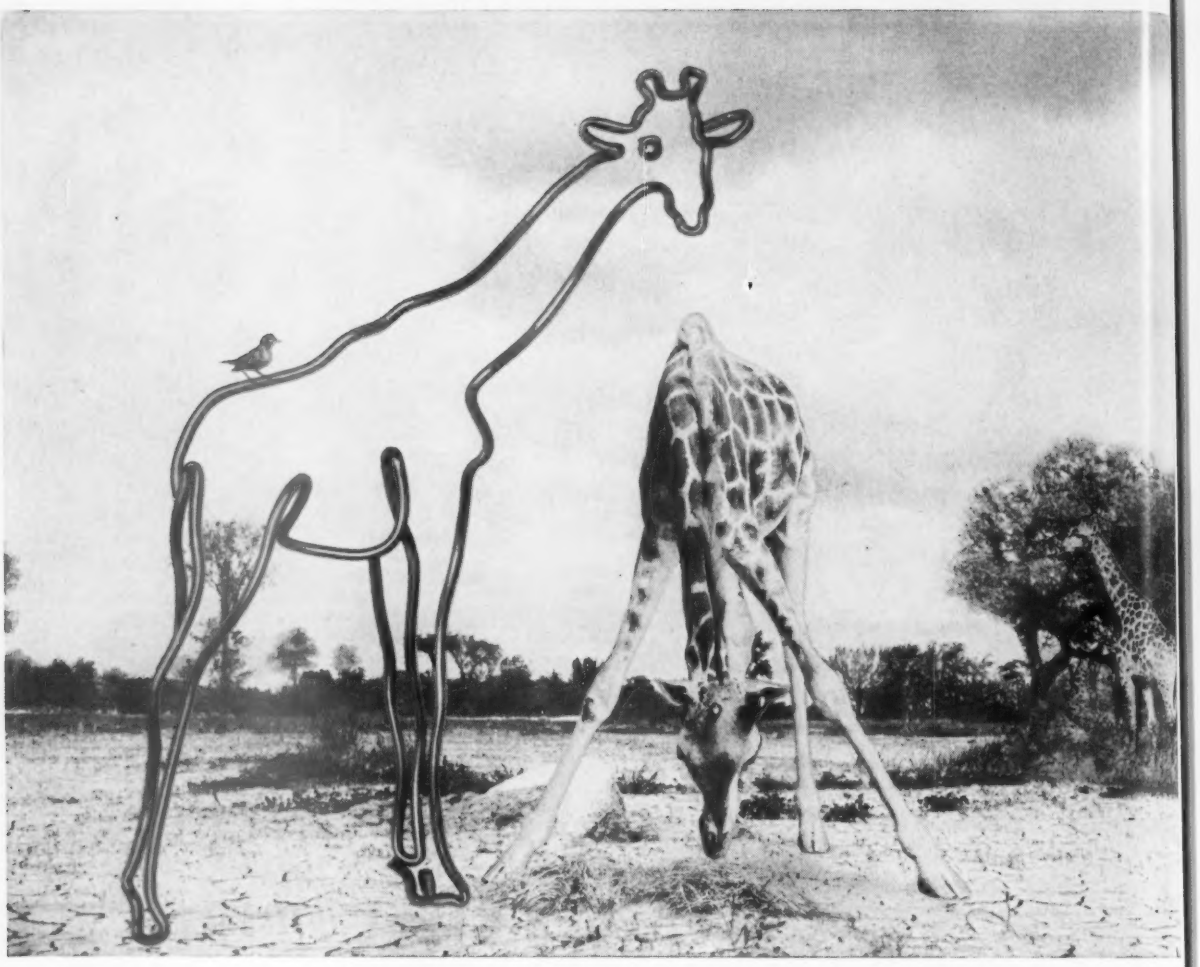



*Catalog F-10 contains the complete Vogt line of valves, fittings, flanges and unions. Available upon request on your letterhead.* ***Address Dept. 24A-FPM***

**HENRY VOGT MACHINE CO., P. O. Box 1918, Louisville 1, Ky.**

SALES OFFICES: New York, Chicago, Cleveland, Dallas, Camden, N. J., St. Louis, Charleston, W. Va., Los Angeles.

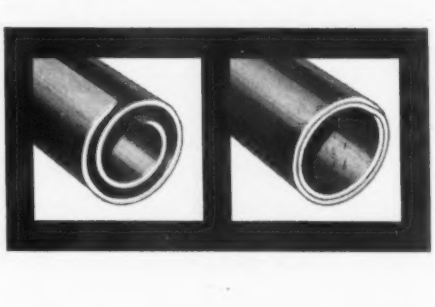
Vogt FORGED STEEL **VALVES, FITTINGS, FLANGES and UNIONS**



# Bundy can mass-fabricate practically anything

No matter how you buy your tubing, it pays to call Bundy first. Cost? Bundy has developed exclusive mass-fabrication techniques that really lower prices. Quality? Bundyweld® steel tubing is the standard of the automotive and refrigeration industries. It meets ASTM 254; Govt. Spec. MIL-T-3520, Type III; and SAE specifications. Delivery? Bundy is famous for getting the order there on time. For straight lengths of tubing, for simple or complex tubing components in the hundreds or the millions, talk to Bundy first. Call, write, or wire: Bundy Tubing Co., Detroit 14, Mich.

* * *



Bundyweld, double-walled from a single copper-plated steel strip, is metallurgically bonded through 360° of wall contact. It is lightweight, uniformly smooth and easily fabricated . . . has remarkably high bursting and fatigue strengths. Sizes up to 5/8" O.D.

## BUNDY® TUBING COMPANY

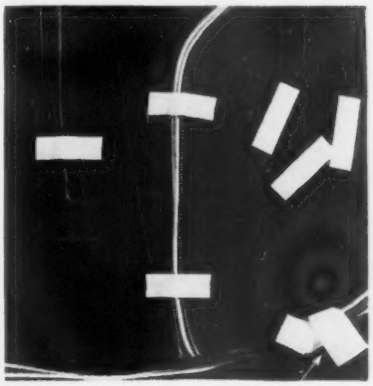
DETROIT 14, MICH. • WINCHESTER, KY. • HOMETOWN, PA.

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING. AFFILIATED PLANTS IN AUSTRALIA, BRAZIL, ENGLAND, FRANCE, GERMANY, ITALY, JAPAN.

For More Facts Write No. 237 on Information Card—Last Page

## Products

### Nylon Fabric Holds Wiring Harnesses



Velcro, a two-part flexible fastening material, is a simple means of holding wire harnesses in complex electrical circuits. One part of the material consists of loomed memory nylon hooks; the other part is nylon loops or pile. When the two are pressed lightly together the hooks and loops engage with substantial holding power. Separation is fast and simple: merely pull the two apart. Material is reusable, has long life, and is neither sticky nor adhesive. Harnesses can be held two ways: mounted on sheets of pile and held by pieces of tape, or by twisting tape around bundles of wire. Material can be used for either permanent or temporary installations. **The Hartwell Corp., 9035 Venice Blvd., Los Angeles 34, Calif.**

Write No. 42 on Information Card—Last Page

### Removes Rust by Chemical Action

A rust remover which is a multi-acid material removes rust to bare metal by chemical action. Product is intended to replace costly manual methods such as wire-brushing, blast cleaning and flame cleaning, at a fraction of the cost. It brushes on, flushes off with water, leaving clean surface for painting. Rust remover is suspended in a thixotropic gelling agent, clings to vertical surfaces, will not sag. **Sloan Chemicals, Inc., Caxton Bldg., Cleveland 15, Ohio.**

Write No. 43 on Information Card—Last Page


# Aid to Production

# KLEIN Electronic PLIERS

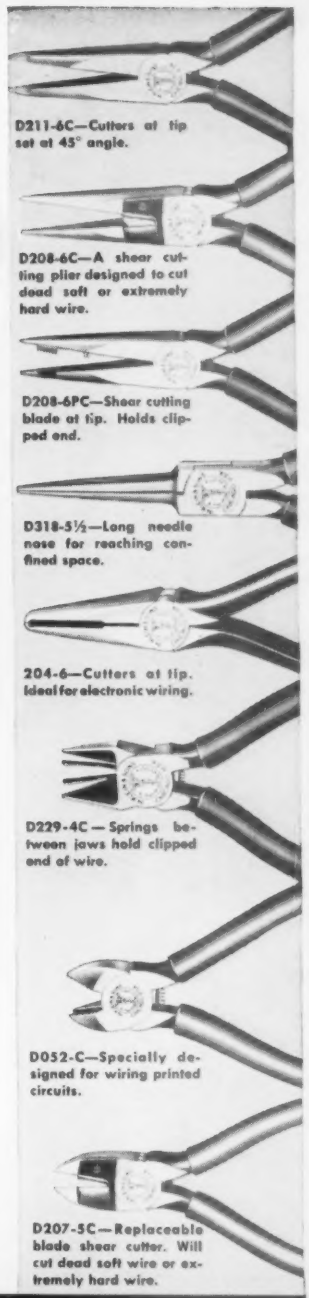
When the first transmission lines were strung in this country a century ago, Klein Pliers in the hands of linemen helped do the job better. Klein has kept pace with the development of the Electrical Field, meeting each new challenge with tools specially designed to do the job better... more economically.

Shown here are a few of the highly specialized Klein Pliers carried in stock to help manufacturers in the production of electrical and electronic components.

Assemblies go together more smoothly and wiring is done more rapidly when the right Klein Plier is used.

**See your distributor**

The Klein line includes a complete range of pliers, side cutters, oblique pliers, long nose pliers, as well as the selected electronic pliers shown here —over 150 different sizes and styles.



D211-6C—Cutters at tip set at 45° angle.

D208-6C—A shear cutting plier designed to cut dead soft or extremely hard wire.

D208-6PC—Shear cutting blade at tip. Holds clipped end.

D318-5½—Long needle nose for reaching confined space.

204-6—Cutters at tip. Ideal for electronic wiring.

D229-4C—Springs between jaws hold clipped end of wire.

D052-C—Specially designed for wiring printed circuits.

D207-5C—Replaceable blade shear cutter. Will cut dead soft wire or extremely hard wire.

KLEIN TOOLS EST. 1857

Mathias KLEIN & Sons

Established 1857 — Chicago, Ill., U.S.A.

INCORPORATED

7200 McCORMICK ROAD, CHICAGO 45, ILL.

Mathias Klein & Sons, 7200 McCormick Road, Chicago 45, Ill.
Please send me the Klein Plier Catalog and information.

Name_____

Title_____

Company_____

Address_____

City_____ State_____

KLEIN tools

For More Facts Write No. 238 on Information Card—Last Page



You get **MORE THAN A MOTOR** with General Electric's Form G . . . for instance . . .

# Years-Ahead Design Leadership

The design leadership reputation of General Electric Form G fhp motors can help to make your products easier to sell.

Both your salesmen and your customers know that G-E Form G design has led the way to long motor life and reliable performance. Constant improvement and innovation in these Form G motors also help you keep ahead of changing industry demands.

All your operations stand to gain from purchases of Form G motors. For instance:

**Your designers**—Form G motors are versatile. Mount them at any angle, direct or belt drive. G-E engineers are on hand to help with unusual motor applications.

**Your manufacturing**—Assembly time can be reduced. It takes just a few minutes to mount this motor on your product, only seconds to connect leads.



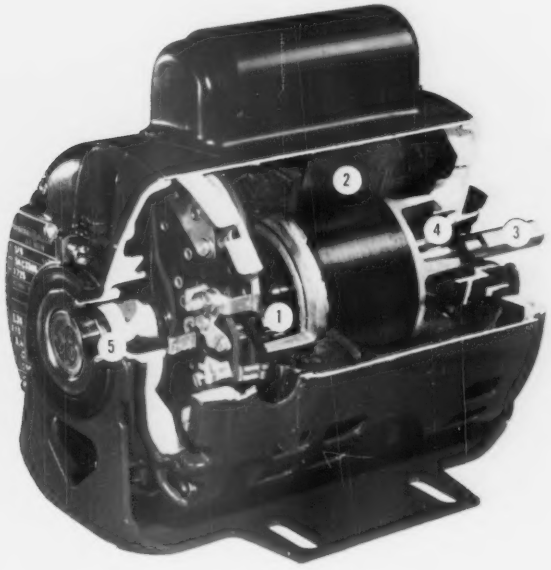
## THESE YEARS-AHEAD FORM G MOTOR FEATURES MEAN LONG LIFE, RELIABLE PERFORMANCE

**1. RELIABLE SWITCH** — Centrifugally-operated switch has been life-tested to last for more than 3,500,000 operations. Dependable switch mechanism operates with positive snap action.

**2. LONG-LIFE STATOR**—Heavy-duty stator bonding dip and Mylar* insulation protect against damage caused by heat, stress, moisture. Stator clamps provide additional rigidity.

**3. RUST-RESISTANT SHAFT**—Special gunmetal-like treatment of motor shaft resists rust and corrosion, simplifies product service. Fans, pulleys, and couplings are easy to remove.

**4. LONG-LIFE LUBRICATION**—Over 50% more oil than in old-design motors and an efficient oil retention system contribute to motor's doubled lubrication life; cut maintenance.




**5. THRUST PROTECTION**—Interlocking washer assembly withstands normal thrust from any direction, regardless of motor angle; also acts as an oil seal for long motor life.

**6. COMPLETE LINE**—Over 850 basic models—and literally thousands of variations—mean there's a standard Form G motor to meet your product's *exact* requirements.

* Reg. Trademark of Du Pont Co.

**Your component inventory**—Assurance of fast, on-time delivery from General Electric means lower inventory requirements for you.

**Your product service**—Your customers can get fast, local service from a nationwide network of G-E Electric Motor Service Stations.

You get these *added values* at no extra cost. So why settle for less?

Form G fhp motors are available in NEMA 48 and 56 frames. For more information, call your G-E Sales Engineer or write for GEA-6424 to Section 721-01, General Electric Co., Schenectady 5, N. Y.

*Progress Is Our Most Important Product*

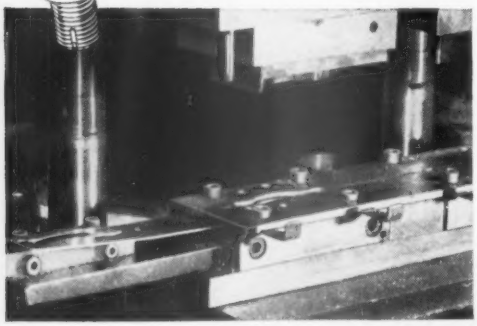
GENERAL ELECTRIC

*2 more case-histories prove:*

# Shock and Vibration Can't Loosen These P-K® SOCKET SCREWS with LONG-LOK



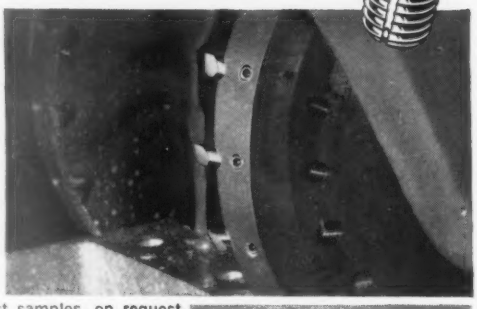
**The precision originally built into machines is often at the mercy of the socket screws that are used to maintain alignment, tolerances and security. Pounding and vibration can make a lot of socket screws loosen, but P-K Socket Screws with Long-Lok Inserts ask for more. For instance:**



**On big metal stamping presses** in a container manufacturer's plant, conventional screws were loosening, spoiling stampings and damaging tools. When P-K Shoulder Screws **with Long-Lok Inserts** replaced "Brand X"... trouble stopped. The canmaker switched to P-K's on **all** machines. Three months later, P-K Screws were actually tighter than when first installed!



**On inserted-tooth milling-cutters,** blades must be held tightly for precision cutting. But, since blades must be removable for sharpening (perhaps 40 times or more in their lifetime), they must come out easily, too. Designer of the milling cutter shown, found P-K Socket Set Screws met both requirements... and at lower **In-Place** cost, too!



Full technical details and FREE test samples, on request.

## It's in the groove...

Secret of Long-Lok's grip – and its high reusability – is the **greater length** of the Polycap (nylon-type) insert. It provides **minimum five-thread** engagement (except in the shorter sizes), is available even longer on special order. Long-Lok Inserts eliminate lock washers or safety wires... can be supplied with **any type or size** of P-K Socket Screws. Stainless steel and copper Long-Lok Inserts also available for special environmental conditions.

**minimum 5 thread engagement**

**LONG-LOK** more length for more grip



**Full line... fast service... qualified technical help**
There's a P-K Socket Screw for every purpose – available through your nearby P-K Distributor. Call on him for quick delivery and fastener ideas that save you money.

# PARKER-KALON®

PARKER-KALON, a division of General American Transportation Corporation
Clifton, New Jersey • Offices and Warehouses in Chicago and Los Angeles

For More Facts Write No. 240 on Information Card—Last Page

## Products

### Latex Paint Base Retards Fire



A new fire-retardant paint latex, Resyn 1066, is a vinyl emulsion which permits formulation of high solid paints that provide good hiding. In addition to limiting the spread of fire, the protective insulating barrier formed by the paint also reduces labor costs in preparing burned areas for repainting. Formulations are non-flammable themselves, presenting no fire hazard during application. They withstand normal scrubbing while still providing fire protection, and tintability provides wide color selection. Resyn 1066 paints present no storage or shelf-life problems. They can be applied with brush, roller or spray, cleanup in ordinary soap and water. Water base also permits use over damp surfaces. Fast dry allows use during regular hours in offices, factories, etc. **National Starch & Chem. Corp., 750 3rd Ave., New York 17, N. Y.**

Write No. 44 on Information Card—Last Page

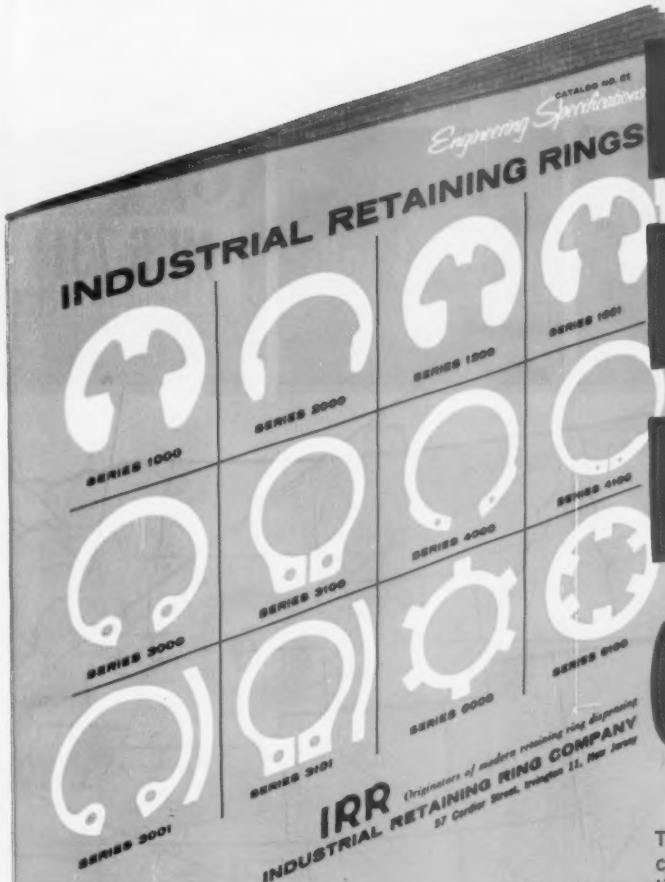
### Plug-In Adapter Provides Safe Electrical Grounding

A duplex grounding adapter is a fast means of converting a standard 2-wire duplex wall receptacle to a 3-wire grounding receptacle. With the polarized adapters, an entire building can be converted overnight and just as quickly changed back again. Existing wall receptacles remain in place: to convert, nothing in the existing system needs to be changed except the screws hold-

(*Please turn to page* 164)

## For YOUR File . . .

# New! Industrial Retaining Ring Catalog




This new Industrial Retaining Ring Catalog, No. 61, contains complete information and engineering specifications on IRR Internal and External Retaining Rings—both for axial and radial assembly—from sizes .040" to 4.125". It also has information of the exclusive, time-saving, IRR "PRE-STACKED" Axial Assembly Rings as well as information on IRR Pliers and Accessories.

The Industrial Retaining Ring Catalog is easy to work with and from. It will greatly assist in design, purchasing and production.

IRR *Originators of modern retaining ring dispensing*

**INDUSTRIAL RETAINING RING COMPANY**

**57 Cordier Street, Irvington 11, New Jersey**

***Use for FREE Samples and Catalog***

**INDUSTRIAL RETAINING RING COMPANY**
**57 Cordier Street, Irvington 11, N. J.**

Please, send me samples of Industrial Retaining Rings and the new IRR Catalog No. 61P.

Name ..... Title .....

Company .....

Street .....

City ..... Zone ..... State .....

**For More Facts Write No. 241 on Information Card—Last Page**

# If you ever see any of these
# any steel in a hurry from



# license plates, you can get USS U.S. STEEL SUPPLY

MILWAUKEE SERVICE CENTER
Mitchell 5-7500

CHICAGO SERVICE CENTER
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BRoadway 1-5000

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STadium 2-9400




NEWARK SERVICE CENTER
Bigelow 2-8000 BArclay 7-7711







PHILADELPHIA SERVICE CENTER
WAlnut 5-7882




MEMPHIS SERVICE CENTER
WHitehall 8-6741

BIRMINGHAM SERVICE CENTER
STate 7-9611

PITTSBURGH SERVICE CENTER
FAirfax 2-4200

BALTIMORE SERVICE CENTER
VErnon 7-4900




THERE'S A RIGHT WAY TO HANDLE $H_2O_2$, TOO!

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

Becco Chemical Division

Becco engineers are specialists in Hydrogen Peroxide...and in the best ways of handling it. Let us put our fourfold service—offering survey, proposal, installation and inspection—to work for you now. It's your assurance of savings, safety and convenience.

161 East 42nd Street, New York City

For More Facts Write No. 242 on Information Card—Last Page

LOWELL WRENCHES RATE HIGH IN VALUE ANALYSIS

Wrench efficiency is measured by speed and dependability. Time studies prove that reversible ratchet wrenches cut costs by their fast action. Always ready for quality performance are Lowell wrenches. Their high tensile handles, heat-treated steel pawls, and all-steel caps insure greater strength and safety.



Series 50—Socket type wrench

The socket allows the bolt to pass through, and is reversible by flipping the "trigger" near the socket. Handles from 8" to 60"; square or hex sockets up to 9 1/8".

Series 40—Gear type wrench

The flat gear, hole-thru type, is made for heavy duty. It is reversed by a "trigger" near the gear. Handles from 24" to 48"; square or hex gears from 3/4" to 4 5/8".

Series 20—Gear type wrench

Especially popular with machine tool builders, it has the reversing knob at the *end* of the handle. Modern appearance, and heavy duty. Handles from 7" to 36"; square or hex gears from 1/4" to 2 3/8".

Call Your Local Distributor For Fast Service

LOWELL WRENCH CO.
74 Temple Street
WORCESTER 4, MASS.

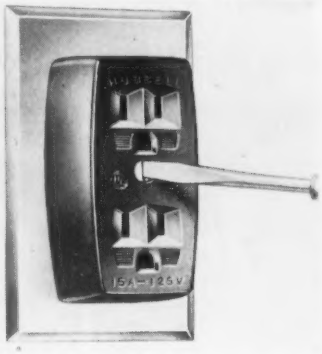
LOWELL RED RATCHET WRENCHES

For More Facts Write No. 243 on Information Card—Last Page

## Products

(*Continued from page* 160)

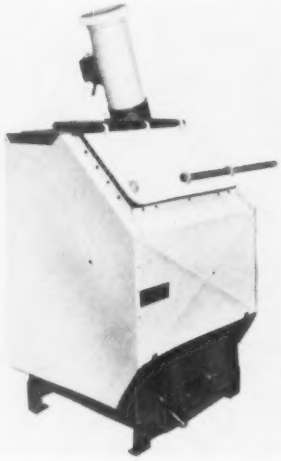
ing the cover plate on the wall. When these screws are removed, the plate remains in place and the new adapter is plugged into



the receptacle. Adapter screw is threaded into place and establishes ground contact through the wiring system. **Harvey Hubbell Co. Bridgeport, Conn.**

Write No. 45 on Information Card—Last Page

### Portable Incinerator Is Odorless, Smokeless



A portable incinerator, guaranteed to be smokeless, odorless, and free from fly ash, will burn up to 200 lbs. of #1 waste per hour at a fuel cost of about 15 cents. It burns any waste, wet or dry. The 13½ cu ft unit measures 36 in. wide, 54 in. deep, and 84 in. high, including stack. Installation is quick and inexpensive, only a 115 volt A-C electric line and a gas supply being needed at its location. **Cornell Hoskinson Manufacturing Corp., 806 Third Ave., New Hyde Park, N. Y.**

Write No. 46 on Information Card—Last Page



# Millions of cans in corrugated

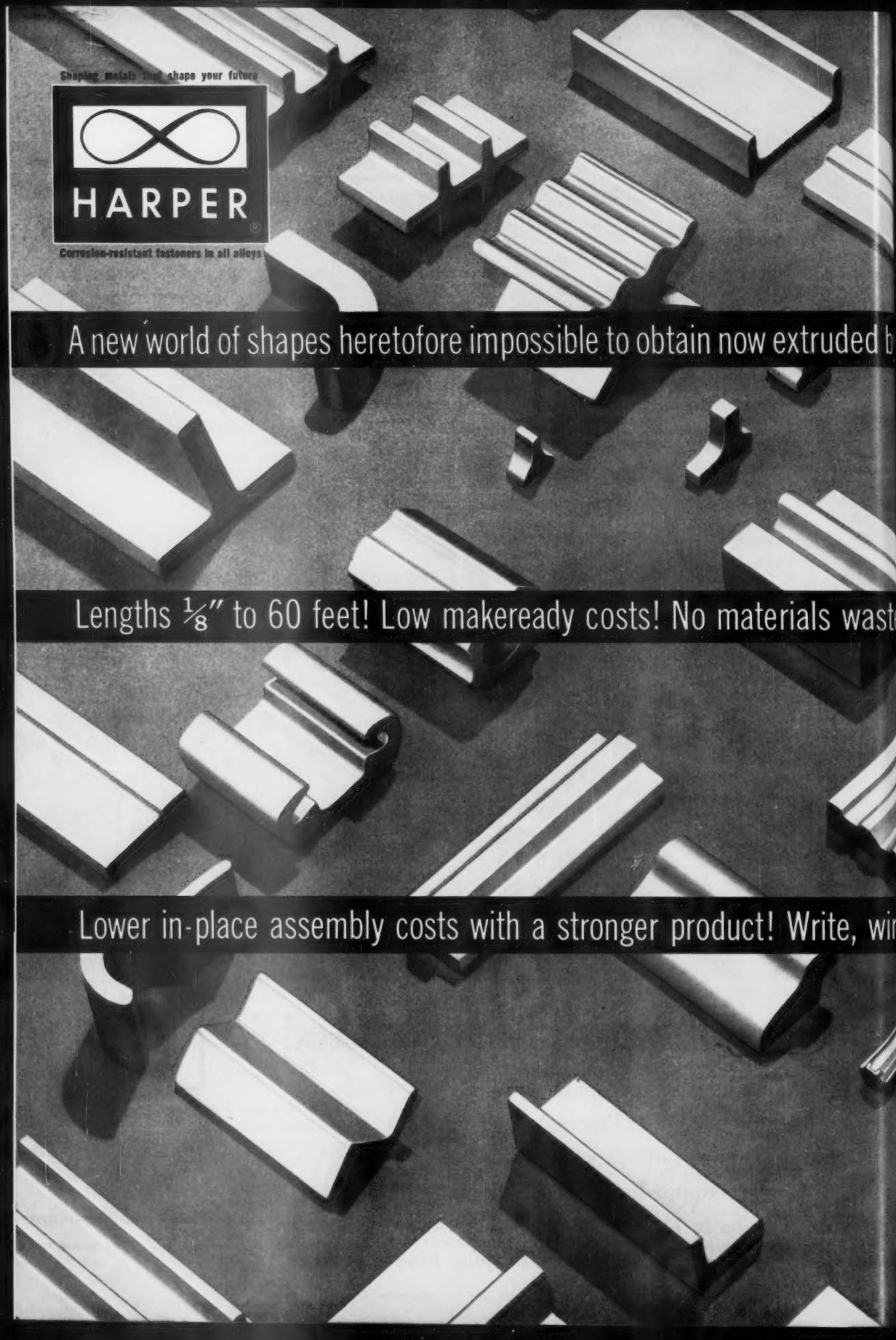
You're just moments away from something good to eat—with canned food on the shelf. Processors keep America's pantry filled with a soup-to-nuts variety of foods in cans. And millions of cans are shipped in rugged, economical corrugated boxes by Hinde & Dauch Division. Canners depend on H&D as a major source of *quality shipping boxes in volume.*

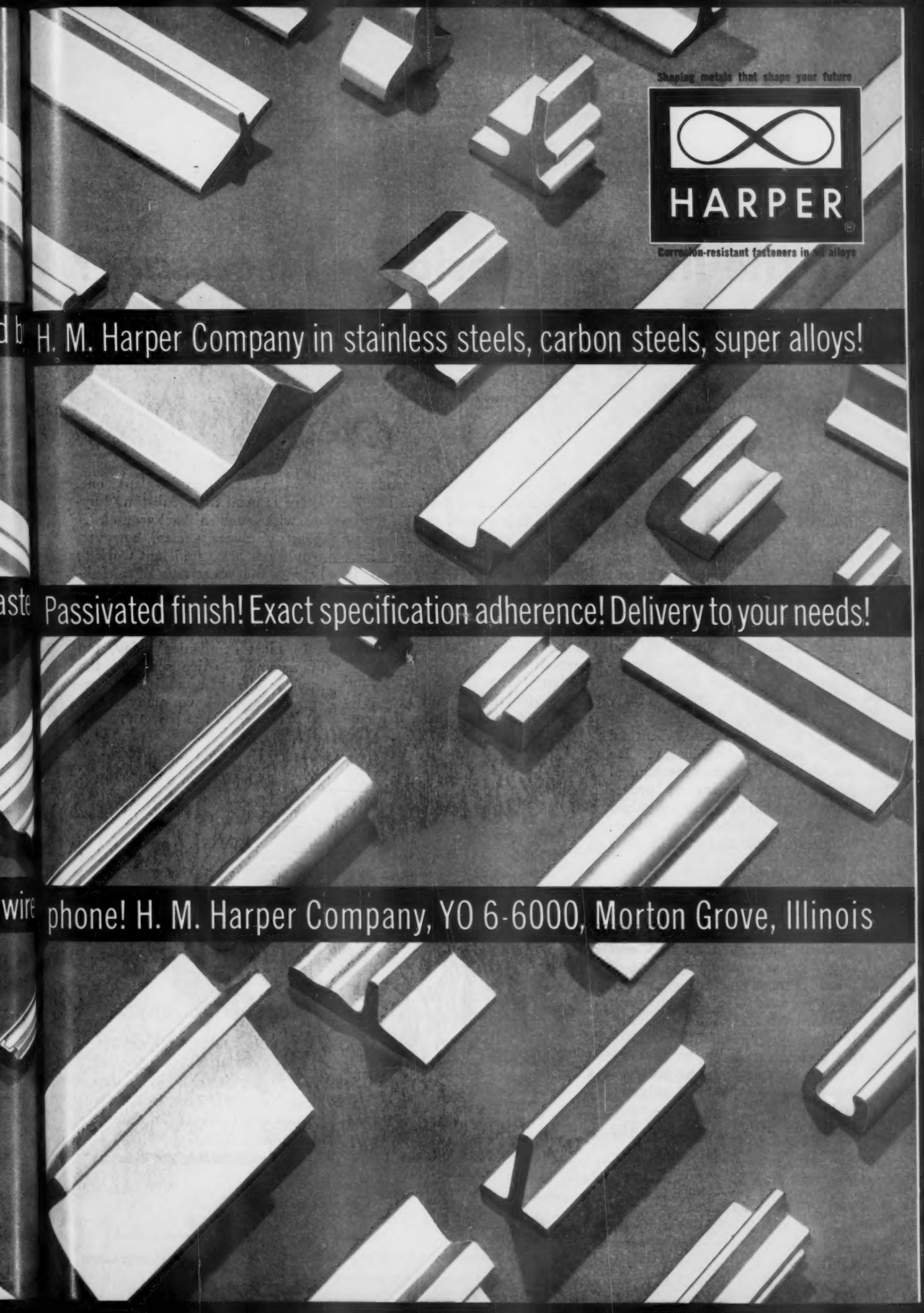
**West Virginia Pulp and Paper**

**Hinde & Dauch Division**

16 Plants • 42 Sales Offices • Sandusky, Ohio

For More Facts Write No. 244 on Information Card—Last Page


Shaping metals that shape your future
HARPER
Corrosion-resistant fasteners in all alloys
A new world of shapes heretofore impossible to obtain now extruded b
Lengths 1/8" to 60 feet! Low makeready costs! No materials waste
Lower in-place assembly costs with a stronger product! Write, wire


Shaping metals that shape your future
HARPER
Corrosion-resistant fasteners in all alloys
H. M. Harper Company in stainless steels, carbon steels, super alloys!
Passivated finish! Exact specification adherence! Delivery to your needs!
phone! H. M. Harper Company, YO 6-6000, Morton Grove, Illinois

# Is the Interior Designer Necessary?

By Mrs. Bea Tomaska, Buyer,
International Minerals & Chemical Corp.

CAN PURCHASING handle a company's interior design? My answer is "yes" with a large "if" after it. If the purchasing agent has talent along interior decorating lines, if he has had sufficient background, schooling and training, and if he has a natural ability to bring out another person's inner feelings about color and style of furnishings, then purchasing can handle such assignments.

The successful designer's background includes art, drafting, home and building design. He has delved into the mechanical problems and operating procedures of a building and has taken courses in business to understand the traffic and flow of business activity.

### Training Is Different

All interior designers have studied fabrics, textures, and paintings, as well as all types of home and office furnishings. A designer must also keep up with current trends. His job is to create, to bring out personalities of people and corporations.

Now, let's explore the purchasing agent: He has had primary and secondary training—much the same as the designer. The third level, however, depends upon his desires and goals in life. He usually has a good basic foundation in business administration; a good number of buyers may have liberal or scientific backgrounds.

The buyer, spending more than 50 cents of the sales dollar, must know every phase of his company to be able to contribute to the over-all picture.

Many P.A.'s have a background of interior design and are quite accomplished. Certainly, if a corporation is a multi-plant one, there is need for a full-time buyer with such a background. A plant of average size, however, would not have sufficient work to satisfy the creativity of a full-time buyer-designer.

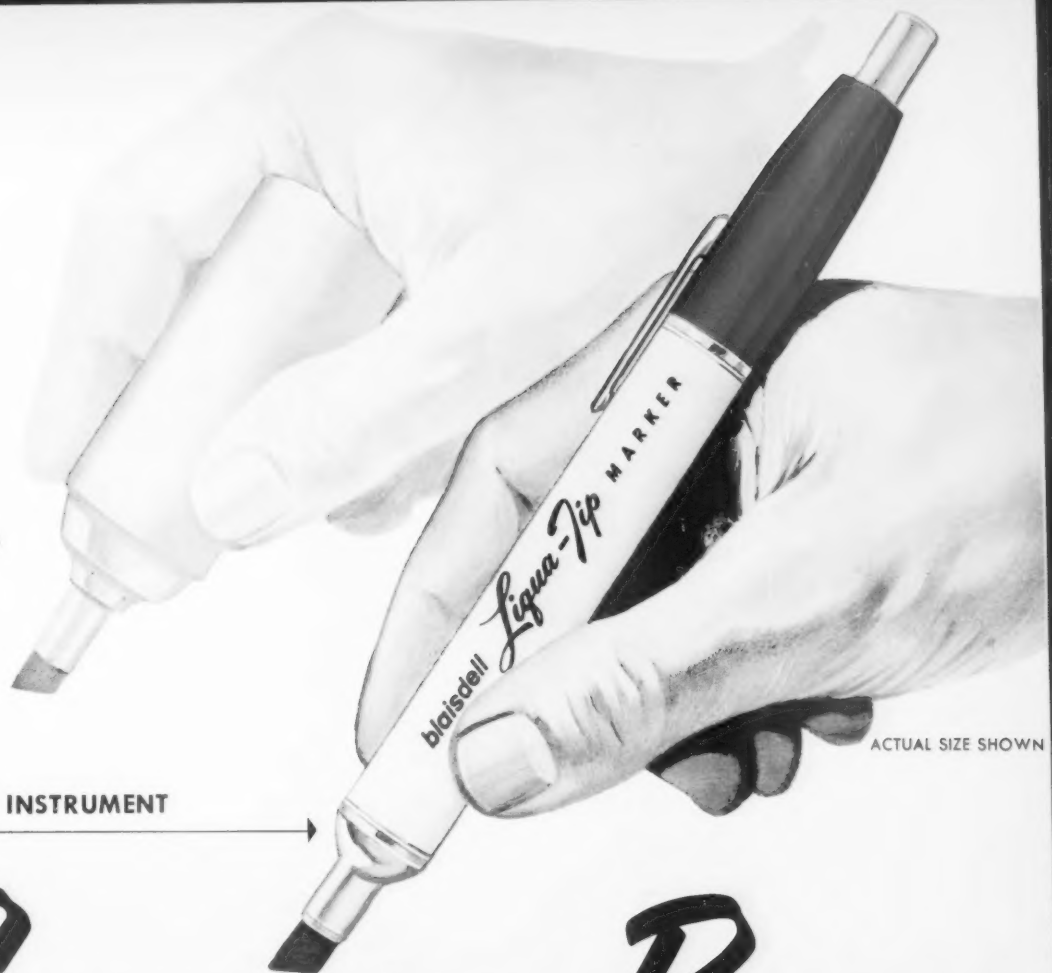
### Deciding on Furnishings

In most companies today, top management, office services, the interior designer, and the purchasing agent have many meet-

(*Please turn to page* 170)



"Remember, you can only go one way, young man, and that's up."




# Comparison Proves

## THE *long, slender* DESIGN OF BLAISDELL'S *Liqua-Tip* MAKES ALL OTHER FELT TIP MARKERS OBSOLETE

Do you use or buy felt tip markers? Or maybe you'd like to if they weren't so squat and clumsy and messy? Well now you can! For Blaisdell has introduced a new concept in felt tip marking . . . a design so advanced that it makes all other popular markers obsolete by comparison.

### LIQUA-TIP IS PEN-SIZE . . . HANDLES LIKE A PEN

Blaisdell has gone to "extra lengths" to bring you a felt tip marker that feels and writes like a pen. The extra length of the barrel does the trick. It's extra slim, too. And there isn't a felt tip marker within dollars of Liqua-Tip's cost that comes close to it—in length, in slimness, in comfort, in all-around performance.

### *LOOK* AT THESE OTHER IMPORTANT FEATURES:

- **leak-proof, one-piece aluminum ink reservoir**
- **marks clearly on all surfaces**
- **fast drying, waterproof, rub-proof ink**
- **king size ink supply**
- **writes even when left uncapped up to 3 hrs.**
- **sturdy pocket clip (prevents rolling)**
- **felt tip permanently secured . . . can't work loose**
- **color keyed plastic top matches ink**
- **self-storing cap . . . can't get lost**
- **available in 8 colors: black, red, blue, green, orange, yellow, brown, violet**

*Suggested retail price 79 cents. Packed one dozen to a box. At leading stationers or write Blaisdell direct for the name of your nearest dealer.*

**blaisdell PENCIL COMPANY** • Bethayres, Pa.

*World's largest manufacturer of paper-wrapped markers—marking specialists to industry and office since 1893*




PLANNED PAPERWORK
FOR THE 1961 COST BATTLE

**STANDARD REGISTER PUTS THE FINGER ON THE BIG WAY TO SAVE ON BUSINESS FORMS.** Successful value analysis of business form purchases in 1961 will rest on three elements—and all three are available when you work with Standard Register. **FIRST, DELIVERY.** For you to maintain low inventories of business forms requires prompt handling of reorders which we can do with our greatly expanded press capacity and guaranteed delivery plan. **SECOND, COMPLETENESS OF LINE.** In addition to special forms, Standard Register makes available one of the industry's widest line of gang run standardized forms which enables you to cut costs on many applications. **THIRD, PLANNED PAPERWORK FOR PURCHASING.** To get the full benefits of a minimum inventory policy, complete control, faster reporting and the other aspects of modern purchasing requires paperwork tailored to your particular needs. ■ Get such a system with the help of your Standard Register business forms specialist. Ask him for details—with no obligation, of course.

STANDARD REGISTER
BUSINESS FORMS

PAPERWORK SIMPLIFICATION / THE STANDARD REGISTER CO., DAYTON 1, OHIO
For More Facts Write No. 247 on Information Card—Last Page

## Office Equipment

(Continued from page 168)

ings in which color, design, budget, and furnishings are discussed. From there on, the P.A. and the designer work together. To see how this relationship works in practice, I questionnaired representative companies in various parts of the country. This is what I learned:

### Purchasing's Vital Role

**Purchase of office furniture.** More than 80% said that purchasing does the job alone. Among the others, some had interior designers attached to the purchasing staff and two had architects rotating between purchasing and engineering.

**Purchases made by interior designer.** All respondents said buying in every instance was done by the purchasing agent.

**Who buys for executive offices?** After a review with top management, office services, and the interior designer, it is the P.A. who has the responsibility for buying.

**Who determines color schemes and layouts?** In 90% of the cases it is a group decision with the P.A. and designer actively participating.

**Choosing an executive's decor.** According to 95% of those answering the questionnaire, executives choose their own decor. The reason most often given: to keep the office in tune with the executive's work habits. The interior designer will discuss the planned decor and furnishings with the executive, suggesting and advising him.

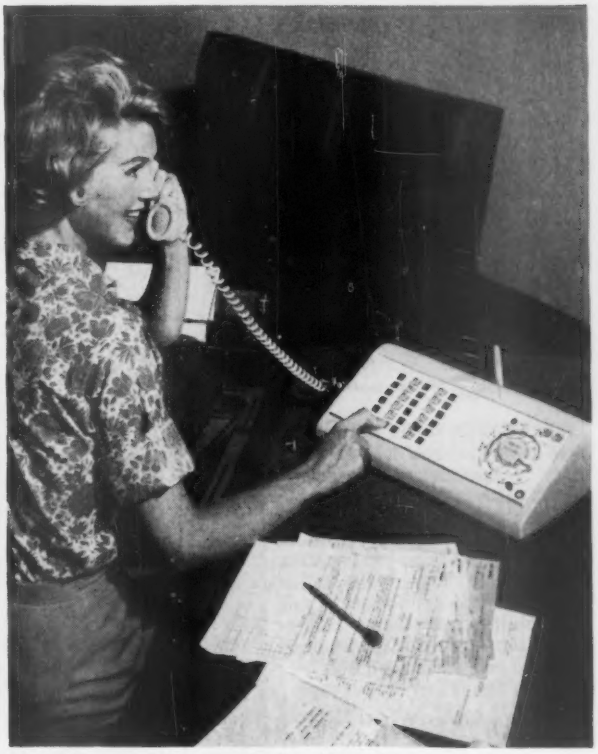
**To what extent does purchasing make the final decision?** Management, in 80% of the companies, leans heavily on the purchasing agent's recommendation after the original budget has been set.

To summarize the survey: Top management, office services, purchasing, and the interior decorator hold group meetings until all agree about color, layout, budget, furnishings, and other materials. Once the specifications have been spelled out, the purchasing agent sends out bids, analyzes them and selects vendors.

# HOW MUCH MONEY ARE YOU WASTING ON MANUAL PBX "BOTTLENECKS"?



Manual PBX: busy, full-time job for attendant



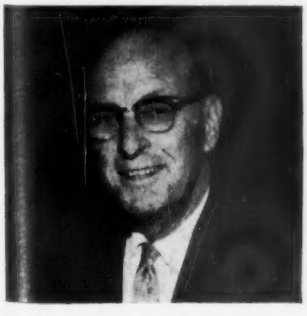
Dial PBX: easy, part-time job for the attendant

## Bell dial communications systems save everybody's time . . . and free your attendants for other productive jobs

Every hour you save on telephone-operator time can be put to profitable use. Every minute you save your employees when they're making or receiving calls cuts your operating costs.

Now Bell System dial communication service can save you many times its cost in work accomplished and more efficient handling of calls. Outbound calls are dialed direct from every desk, so your telephone attendant can handle incoming and priority calls with ease.

A call to your Bell Telephone Business Office will bring a Communications Consultant with the full story. His counsel won't cost you a cent.



**Here's what George R. Stunkard, Vice-President of Greenlease-Stunkard, Inc., Cadillac agency of Tulsa, Okla., says about dial PBX:**

"Our customers and our own people were having trouble getting calls through our manual switchboard quickly. We were wasting time—and probably losing business. The Bell Communications Consultant recommended a dial PBX.

"Now most calls go through automatically. We know our time and money savings are substantial—and, more important, we're giving our customers better service."

**BELL TELEPHONE SYSTEM**

# WE DON'T EXTRUDE PENS LIKE SPAGHETTI...

Because only a **MOLDED BARREL** can give you a "Finger-fit" Grip!




**ENGINEERED FOR BETTER WRITING,** the new Eagle STICKPEN lets you write longer . . . more comfortably . . . without finger fatigue. Extruded competitive barrels are one shape from end to end, but Eagle's molded barrel is beautifully sculptured at the finger grip to a scientific shape that fits your hand. Made of high-impact, odorless Forticel, it will never shatter, crack, warp, craze, or change color. Your new Eagle STICKPEN will stand more abuse, and it looks more expensive than ordinary office pens!

**A MOLDED, "FINGER-FIT" GRIP,**

*Plus All These Extra Quality Features!*

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- PRECISION TURNED BALL SOCKET
- STAINLESS STEEL BALL
- SOLID BRASS (Not Plastic) CARTRIDGE
- FILLED WITH THE FINEST INK
- EACH PEN INDIVIDUALLY TEST-WRITTEN BY HAND

and only **29¢** MEDIUM POINT Fed. Tax. Incl.

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For More Facts Write No. 248 on Information Card—Last Page


## Office Equipment



A self-regulating clock system features **wall clocks** in six colors. Hands and bezels are colored in red, green, blue, gold, black, or gray. The clocks are sold in 9, 12, 15 and 18 inch sizes and are flush mounted on walls. They project less than two inches, depending on clock size. **Cincinnati Time Recorder Co., 1733 Central Ave., Cincinnati 14, Ohio,** is the manufacturer.

Write No. 47 on Information Card—Last Page



**Portable typewriter** was recently introduced by **Smith-Corona Marchant Inc., 410 Park Avenue, New York 22, N.Y.** It has a standard 88-character keyboard, keyset tabulation, interchangeable platen, steel frame and carrying case.

Write No. 48 on Information Card—Last Page

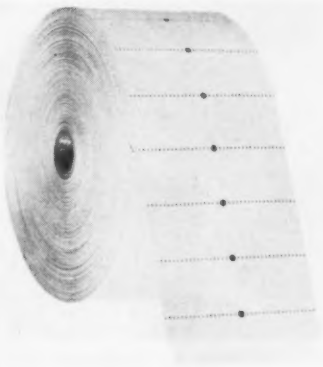
Booklet entitled "34 ways to cut hidden **office costs**" is offered without charge by **A. B. Dick Co., 5700 West Touhy Ave., Chicago 48, Ill.** It outlines photocopy techniques that can lower costs, eliminate errors, and improve communications.

Write No. 49 on Information Card—Last Page



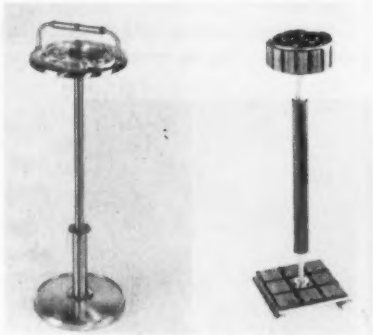
Fabric-covered rubber foam back is one of the features of the new executive **posture chair** by the **Royal Metal Manufacturing Co., One Park Ave., New York, N.Y.** Arm rests are made in either upholstery or natural grain wood to match desks.

Write No. 50 on Information Card—Last Page



Rolls of perforated **labels** are available from the **Nevacurl Label Co., 756 Fourth Ave., Brooklyn 32, N. Y.** Made of dry gummed paper, the labels can be used on most automatic addressing equipment, as well as in all typewriters.

Write No. 51 on Information Card—Last Page



Walnut and brass **smoking stands** are available from **The**

**Carlton Co., 4017 Payne Ave., Cleveland 3, Ohio.** There are 26 models in the new line which includes various contemporary and traditional styles. Particular features are the heavily weighted bases, heavy-duty finishes and removable glass or metal ash trays.

Write No. 52 on Information Card—Last Page



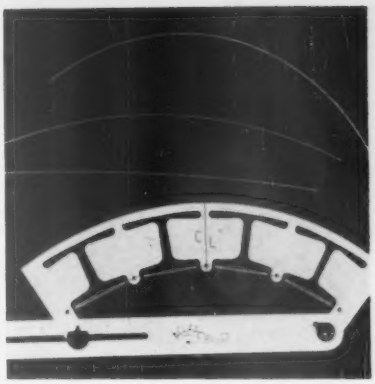
A thermoelectric commercial **refrigerator-freezer** was recently introduced by the **Norge division of Borg-Warner Corp., Merchandise Mart Plaza, Chicago 54, Ill.** Forerunner of the noiseless home refrigerator, the new unit requires no mechanical compressor or refrigerant.

Write No. 53 on Information Card—Last Page



Modern version of the **time clock** prints and punches the data on employee's card. Produced by **American Data Machines, Inc., 7 Commercial Street, Hicksville, L. I., N. Y.,** the new machine will punch, on a daily basis, 3 columns for "in" and 3 columns for "out" time. Time is punched for a seven-day week on a 24-hour basis with minutes divided into tenths.

Write No. 54 on Information Card—Last Page



Development of a device which will provide draftsmen with a rapid and accurate **means of drawing arcs** of circles has been announced by **Hoyle Engineering Co., 25408 W. Highway 66, Barstow, Calif.** It will draw arcs of circles of any radius from 7″ to 200″.

Write No. 55 on Information Card—Last Page



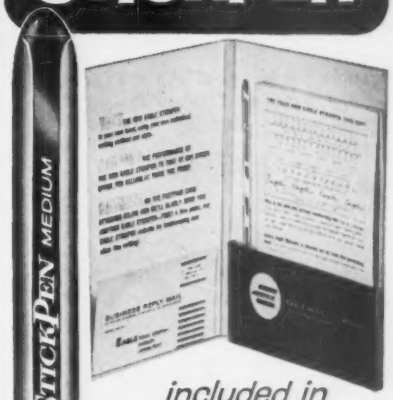
Portable, ten-key electric **calculator** has been introduced by **Bohn Duplicator Co., 444 Park Avenue South, New York 16.** It weighs about seven pounds and is approximately the size of a telephone. The new calculator adds, subtracts, multiplies, divides and shows totals up to 11 columns.

Write No. 56 on Information Card—Last Page

"There is no room for error in **automation,**" is the title of a booklet published by **Baltimore Business Forms, Inc., 3132 Frederick Ave., Baltimore 29, Md.** It describes the specifications used for manufacture of tabulating cards. The booklet also details the packaging method of wrapping small quantities of cards in polyethylene to keep them clean and moisture-free until ready for use.

Write No. 57 on Information Card—Last Page


FREE EAGLE STICKPEN®






*included in*

FREE SCIENTIFIC WRITING TEST KIT!

**Purchasing agents who've used this kit acclaim it "The most practical measure of ball pen performance ever devised!"**

Get the actual handwriting test that every Eagle STICKPEN must pass after it has successfully passed 10 other rigid "Quality Control" tests! Specially devised by Eagle laboratory technicians, this scientific writing test shows up even the slightest imperfection of any ball pen . . . under actual writing conditions! No buying executive responsible for supplying his personnel with good office pens can afford to be without this instructive test-kit!

GET YOUR SCIENTIFIC WRITING TEST KIT . . . NOW . . . FREE! Compare in your own hand, the Free Eagle STICKPEN against any other ball pen—using your own individual writing method and style!

FILL OUT AND MAIL THIS COUPON!

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Without obligation, please send me the new Eagle STICKPEN included in the FREE WRITING TEST KIT that shows up even the slightest imperfections of any ball pen, under actual writing conditions!

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For More Facts Write No. 248 on Information Card—Last Page



# EMPTY CHAIRS cost you money

People who are not at their work stations cost you money. Look at the people in your office who are at their desks now . . .

Are they sitting on the edges of their chair seats?





Are they neglecting to use the backrests on their chairs?

Are they slouching or squirming in an effort to be comfortable?



**If this is happening, you have the wrong chairs and it is costing you money to keep them!**

People like comfort, and they won't sit for long in uncomfortable or improperly fitted chairs. The answer? Visit your Harter dealer. Only there will you find a completely equipped Seating Center that takes the guesswork out of buying chairs. You see, try, compare before you buy. And regardless of your budget, you are assured of correct chairs for each job function in your office.



**Switch to Harter**

*For Harter Seating Center Location and further information, attach this coupon to your letterhead and mail to:*

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Mexico:
Briones-Harter, S.A., Lago Iseo 96, Mexico 17, D.F.
New Zealand—Australia:
Morrison Industries, Hastings, New Zealand

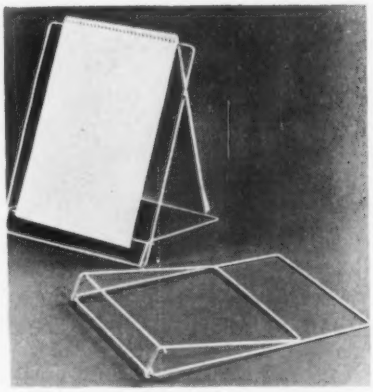
For More Facts Write No. 250 on Information Card—Last Page


## Office Equipment



Swedish **typewriter** with a double tabulator system has been introduced by **Facit Inc., 404 Park Avenue South, New York 16, N.Y.** Other features of the new machine are extra low keyboard, tube and ballbearing mounted carriage, and a key-jam release mechanism.

Write No. 58 on Information Card—Last Page



Stenographic **notebook holder** is being marketed by **Cel-U-Dex Corp., Newburgh, N.Y.** The device is made of chrome-plated steel and can be folded for storage in the desk when not in use.

Write No. 59 on Information Card—Last Page



Electronic tape printer which enables **direct communication** between two points has been developed by **Goodyear Aircraft Corp., Litchfield Park, Ariz.** The receiving unit can be installed in a car or truck and is adaptable to radio, telephone or telegraph circuits. The message will be transcribed on a tape even if the unit is unattended.

Write No. 60 on Information Card—Last Page



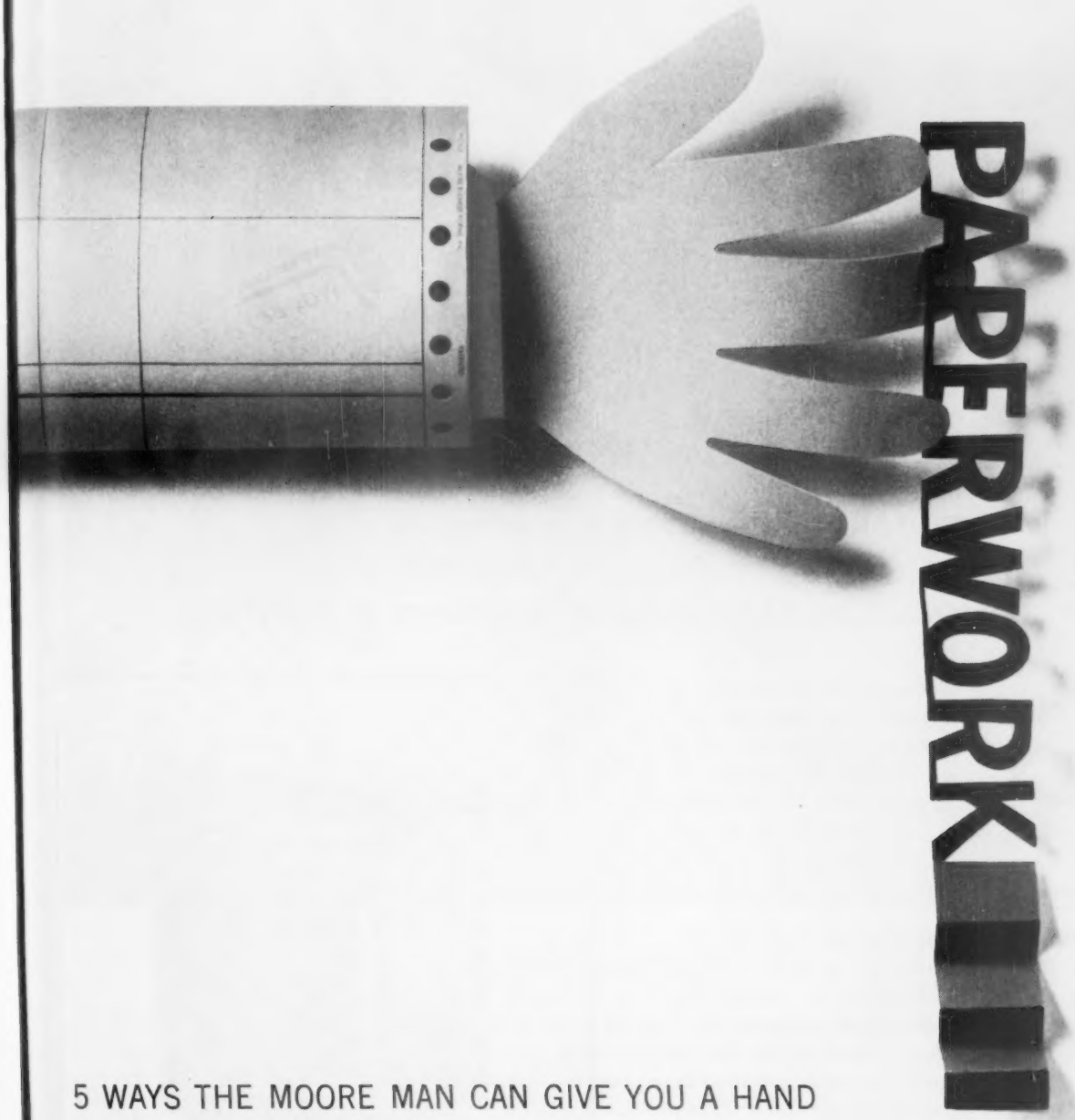
Electric **paper cutter** which will cut more than a ream of paper has been introduced by **Michael Lith Sales Corp., 145 West 45th St., New York, N. Y.** When the knife needs adjusting, turn of a knob raises or lowers it. There is an additional calibration on the front of the machine for measurements as small as 1/32 of an inch. The new machine has a 15⅛" cutting width and a 2¼" cutting thickness.

Write No. 61 on Information Card—Last Page



New line of **filing cabinets** has been introduced by **Yawman & Erbe Mfg. Co., Inc., Rochester 3, N.Y.** It includes 2, 3, 4, and 5 drawer files in both letter and legal sizes. Full details, illustrations, dimensions, and charts are included in a brochure published by the company.

Write No. 62 on Information Card—Last Page




## 5 WAYS THE MOORE MAN CAN GIVE YOU A HAND

**1. PAPERWORK** The fastest way to reduce paperwork is to cut a system to its bare essentials. The Moore man can show how to avoid duplication, how to reduce waste motion to a minimum, how to improve a system for complete efficiency, at minimum labor and cost. He can also show results in 2. Control, 3. Savings, 4. Speed, 5. System.

**An extra 'employee' working for you**—Which forms should you have? The Moore man isn't limited—he can furnish any forms construction to eliminate duplicate writing and records. He's backed by Moore's research teams who are at work designing forms that cut costs. And Moore's many plants are located near you for fast service.

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## Checking a source is easier... and more effective because of telephone numbers in CMPD

You are given a *convenience* unduplicated by any other directory when you use CONOVER-MAST PURCHASING DIRECTORY because CMPD lists the telephone numbers, nationwide, of companies selling to industry. (CMPD is the only national, general industrial directory that lists the phone numbers of advertisers and non-advertisers alike.)

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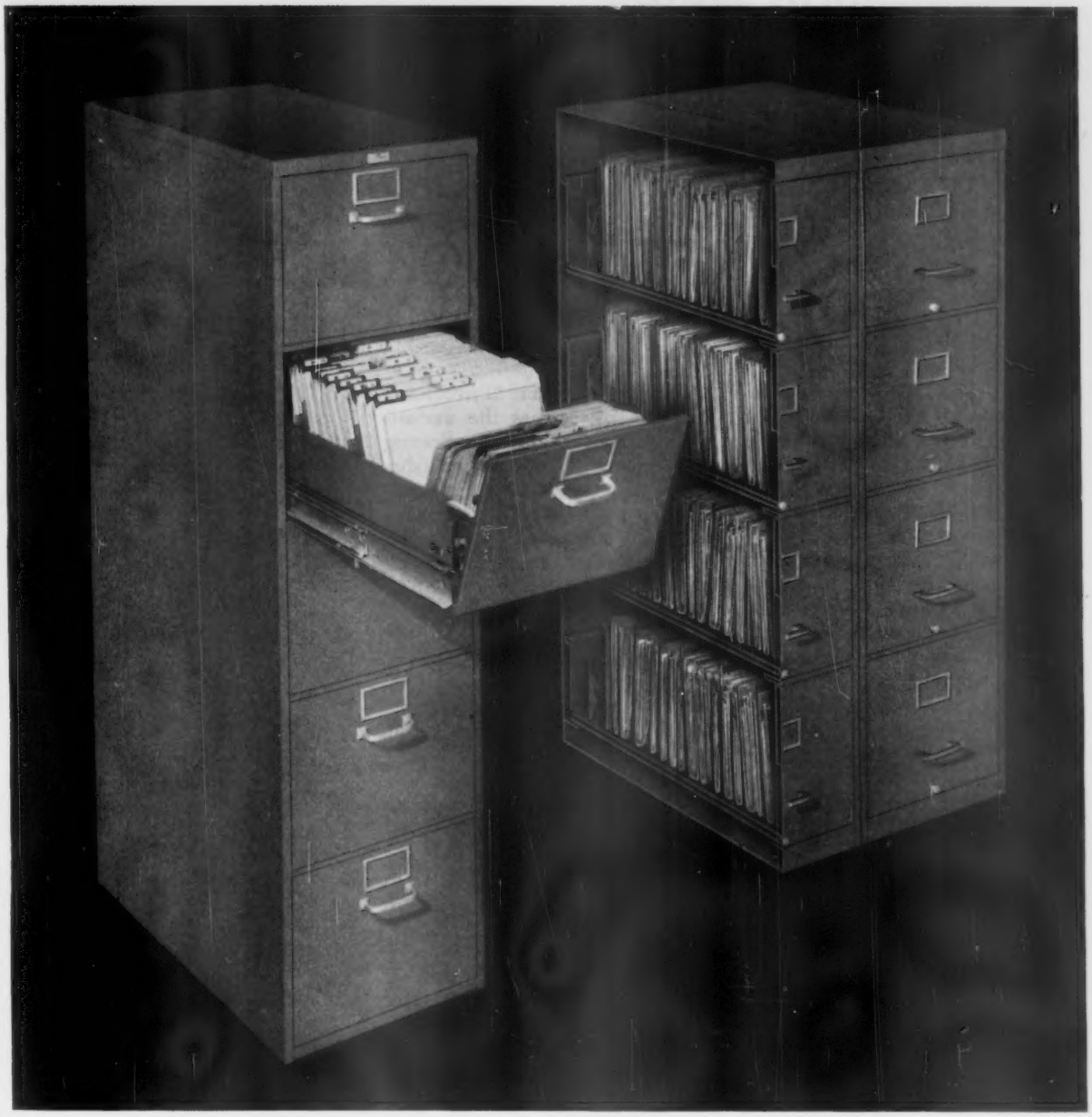
Use CMPD the next time you are checking sources.

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CMPD is compact and handy because it lists only industrial products.



# One equals one-and-a-half

**FREE LITERATURE on GF Business Furniture**

Check literature desired, attach to your business letterhead, and mail to address listed at right.

☐ **SUPER-FILER BROCHURE**
**Detailed information on "mechanized filing" with the GF SUPER-FILER**

☐ **GF BUSINESS FURNITURE CONDENSED CATALOG**
**Condensed data on the broad line of GF business furniture—chairs, desks, filing equipment, partitions, shelving.**

**One five-drawer GF SUPER-FILER** matches the capacity of one-and-a-half conventional four-drawer files . . . saves ⅓ in office floor space. The answer is simple. The patented swing-front drawers on GF SUPER-FILERS permit *full utilization* of every file drawer. Valuable savings in floor space are not the only "extra" SUPER-FILERS offer. Their mechanized action speeds up filing by at least 25%, too. And the patented GF file drawer suspension functions as smoothly and quietly the 100,000th time you open it as the first. Rigid factory "torture testing" makes sure of that.

It's just further assurance that GF business furniture will serve you better, last longer, give you greater lifetime economy. Department PM-18, The General Fireproofing Co., Youngstown 1, O.

GF
BUSINESS FURNITURE

For More Facts Write No. 252 on Information Card—Last Page

# N.A.P.A. PUBLISHES CAREER BOOKLET

A LARGE GAP in the educator's bookshelf will be filled by the new booklet just published by the National Association of Purchasing Agents. It is a 26-page, 8½ x 11 brochure entitled "Purchasing As A Career."

The booklet was planned with two purposes in mind: to appeal to the college student seeking information about purchasing and to serve as a guide for purchasing department personnel, other departments, and general management.

According to Marshall G. Edwards, N.A.P.A. administrative assistant, copies of the brochure will be distributed within the association and to major colleges, universities, and management consultant organizations.

### Describes Purchasing Function

The booklet—edited by Dr. I. V. Fine, professor of business administration at the University of Wisconsin's School of Commerce—is divided into seven chapters, beginning with a description of the purchasing function.

Among the items discussed are quality, quantity, price, source of supply and value analysis. The importance of purchasing to a company's profits is pointed out, as well as the growing recognition by management of the importance of purchasing.

The brochure also explains purchasing's position in the company and the relationship between purchasing and other departments. The organization of the purchasing department is spelled out, and both horizontal and vertical types of buying responsibility are covered.

The third chapter, "Purchasing Positions," describes the various job functions within a purchasing department. This chapter discusses in some detail the responsibilities and duties of the manager of purchases, purchasing agent, assistant purchasing agent, buyer, assistant buyer, expediter, traffic manager and clerks.

Chapter 4 deals with the preparation and qualifications required for a purchasing career. It notes that the personal characteristics must include a high level of moral and ethical conduct.

Training, discussed in Chapter 5, is available through courses sponsored by member associations of the N.A.P.A., schools and colleges, and various companies. A typical training program is outlined.

Quoting recent magazine surveys, the booklet points out in Chapter 6 the rewards and opportunities in purchasing. Salaries range from $5500 for assistant buyers to a high of $50,000 for directors of purchases.

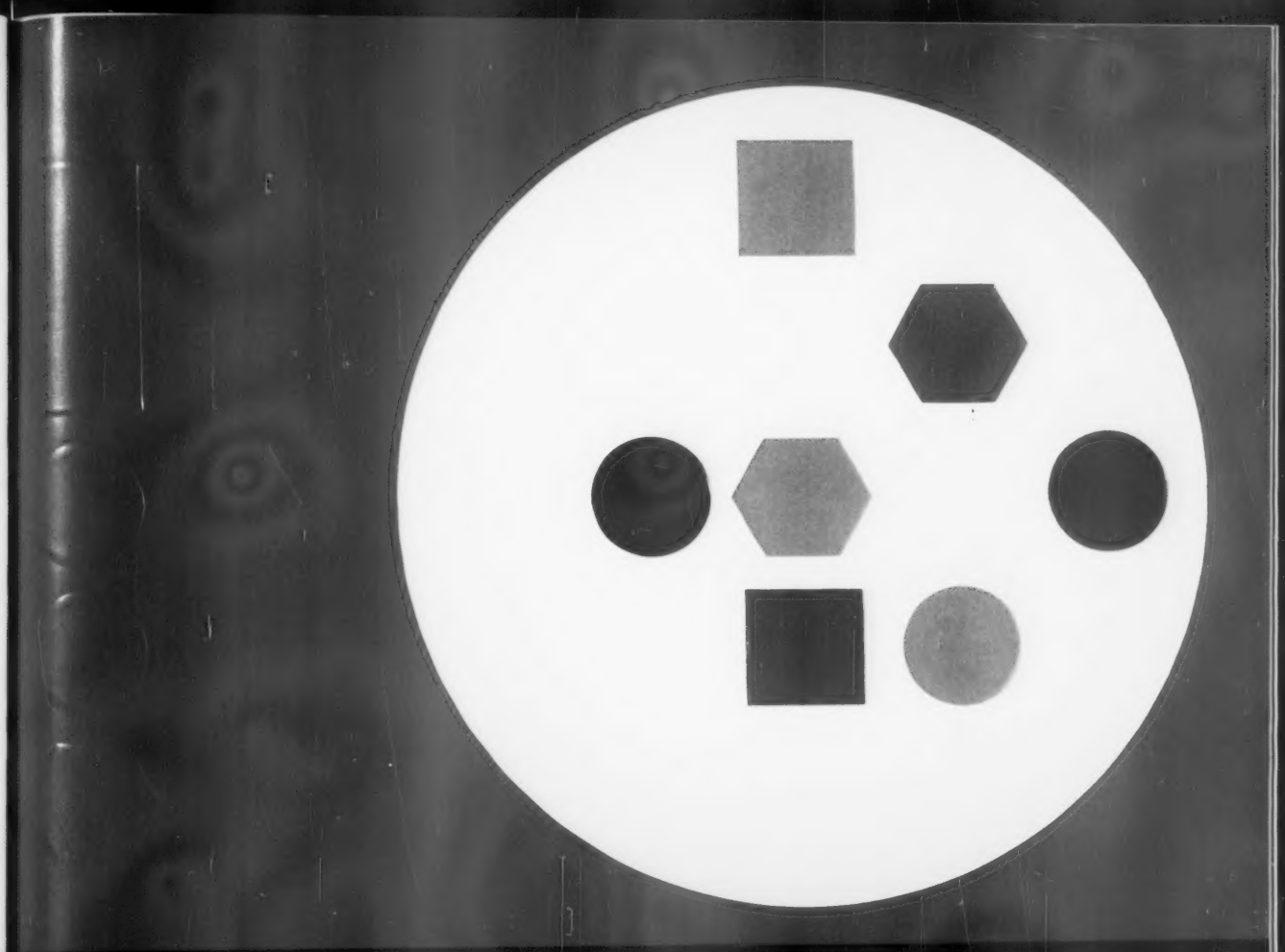
The intangible rewards of a career in purchasing—such as the sense of responsibility and the opportunity to meet and work with people in many other departments of the company—are also reviewed.

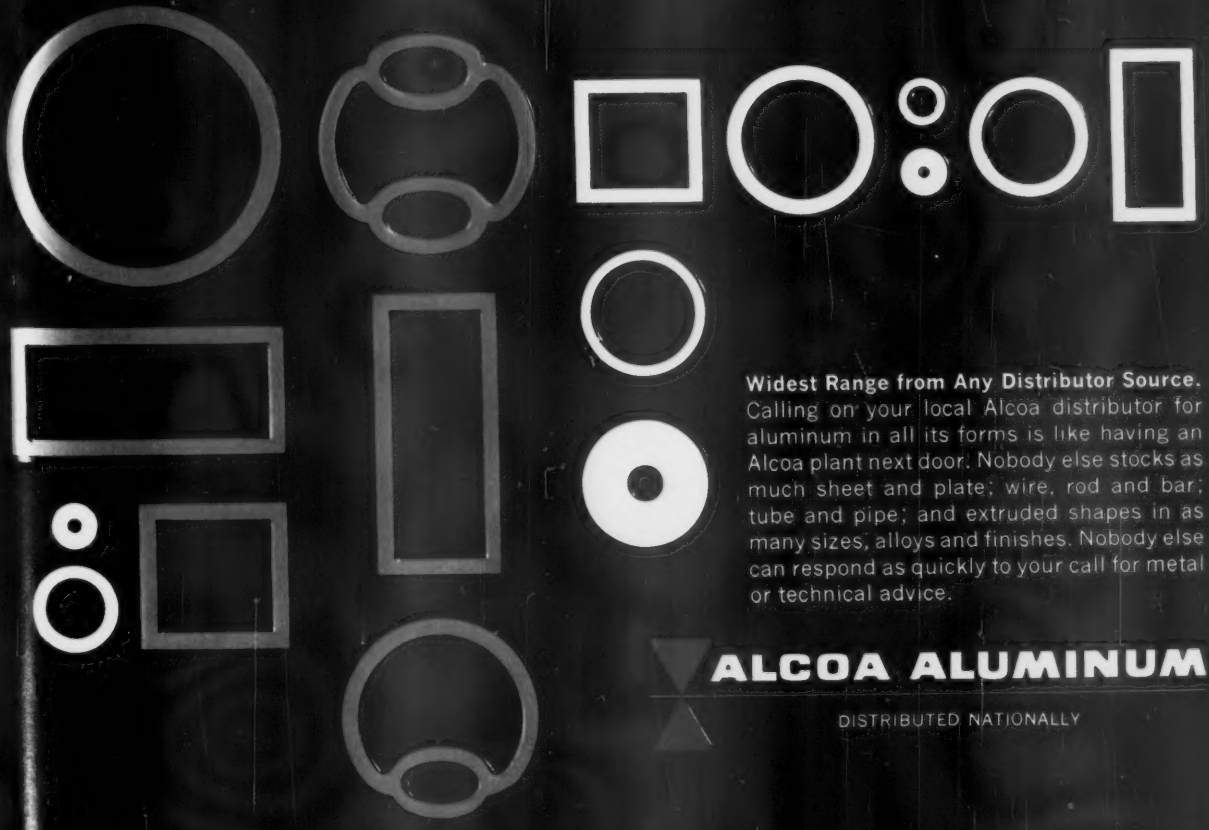



In the final chapter, the booklet centers on purchasing in the future. New concepts, like materials management, electronic data processing, and professional certification are covered.

**Some of the country's top purchasing executives had a hand in the preparation of the new N.A.P.A. booklet, "Purchasing As A Career." The project committee included:**

**E. F. Andrews, Allegheny Ludlum Steel Corp., chairman;**
**R. D. Crane, Dresser Industries, Inc.;**
**K. A. Cruise, The Bendix Corp.;**
**C. T. Hardwick, University of Detroit;**
**H. F. Jones, E. I. du Pont de Nemours & Co.;**
**C. J. Koenig, Monsanto Chemical Co.; and**
**Lamar Lee, Jr., Stanford University.**





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(Axminster 2-7600)
**Cleveland 14**
Williams and Company, Incorporated
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**Columbus 12**
Williams and Company, Incorporated
(Axminster 4-1623)
**Toledo 12**
Williams and Company, Incorporated
(Greenwood 5-8861)
**OKLAHOMA**
**Tulsa 13**
Metal Goods Corporation
(Temple 6-2561)
**OREGON**
**Portland 9**
Pacific Metal Company
(Capitol 7-0693)
**PENNSYLVANIA**
**Philadelphia 34**
Edgcomb Steel Company
(Garfield 3-6300)
**Philadelphia 33**
Metal Supply Company
(Center 6-0220)
**Philadelphia 40**
Whitehead Metals, Inc.
(Baldwin 9-2323)
**Pittsburgh 33**
Williams and Company, Incorporated
(Cedar 1-8600)
**York**
Edgcomb Steel Company (47-1931)
**RHODE ISLAND**
**Slatersville**
Edgcomb Steel of New England, Inc.
(Poplar 7-0900)
**SOUTH CAROLINA**
**Greenville**
The J. M. Tull Metal & Supply Co., Inc.
(Cedar 3-8366)
**TENNESSEE**
**Memphis 6**
Metal Goods Corporation
(Whitehall 8-3407)
**TEXAS**
**Dallas**
McCormick Steel Company
(CH 7-3104)
**Dallas 35**
Metal Goods Corporation
(Fleetwood 1-3271)
**Houston 1**
McCormick Steel Company
(OR 2-6671)
**Houston 1**
Metal Goods Corporation
(Riverside 7-1110)
**UTAH**
**Salt Lake City 1**
Pacific Metals Company, Ltd.
(Davis 8-2222)
**WASHINGTON**
**Seattle 8**
Ducommun Metals & Supply Co.
(Parkway 5-1500)
**Seattle 4**
Pacific Metal Company (Main 2-6925)
**Spokane 4**
Pacific Metal Company
(Keystone 5-3681)
**WISCONSIN**
**Milwaukee 1**
Central Steel and Wire Company
(Humboldt 1-5000)
**Milwaukee 9**
Steel Sales Co. of Wisconsin
(Hilltop 2-2020)

## Call The Aluminum Man . . . his stock's the most complete!

Your Alcoa distributor sales representative—*The Aluminum Man*—maintains a warehouse bulging with sheet and plate; tube and pipe; extruded shapes; wire, rod and bar. His stock represents the widest range of aluminum products available from any distributor source. He can arrange for them to be slit, sawed or sheared to your specifications—furnish technical advice you may need on alloy selection and fabrication techniques. He's your fastest supply line for aluminum in any form when you need it. Your nearest Alcoa distributor is listed on this page, so give him a call . . . soon. Aluminum Company of America, 846-K Alcoa Building, Pittsburgh 19, Pa.

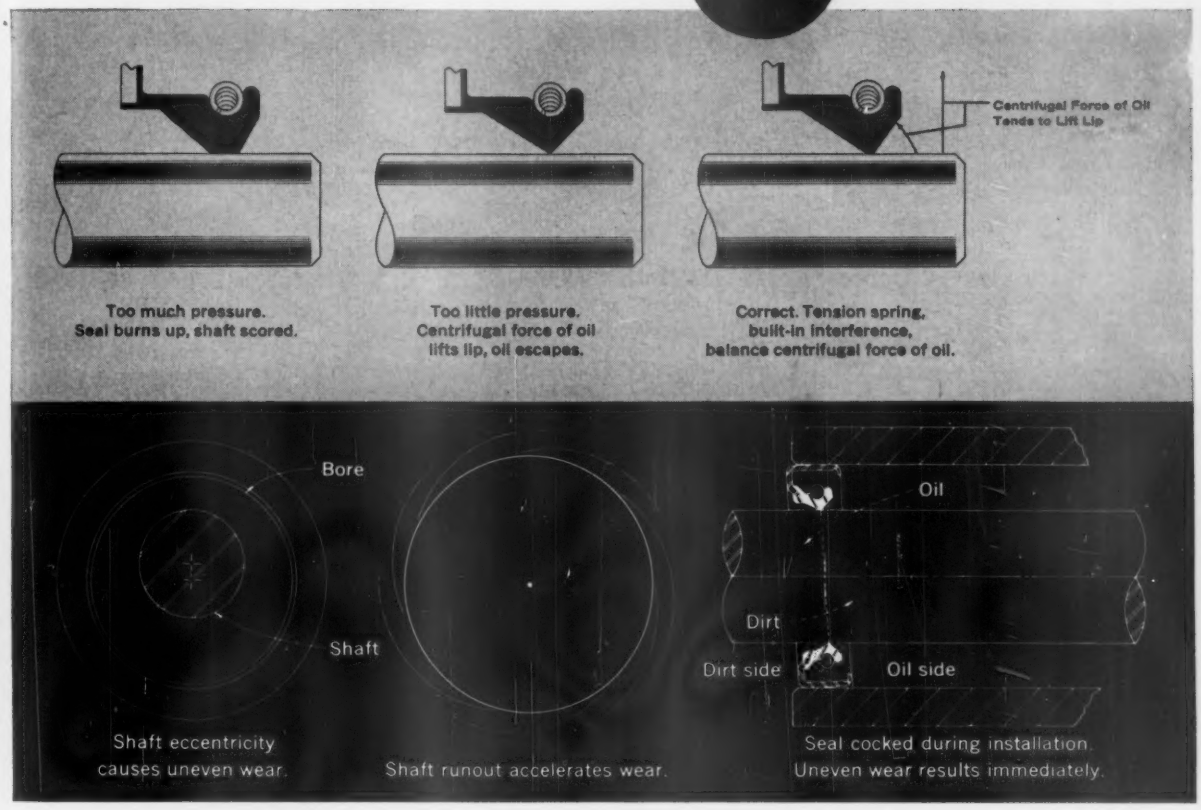
**ALCOA ALUMINUM**

DISTRIBUTED NATIONALLY

Call *The Aluminum Man* . . . he's your Alcoa distributor sales representative



# Lip pressure...too much or too little, and you've a leaker for sure!




Ideal sealing conditions are (1) shaft in bore center, (2) no runout, (3) seal not cocked, (4) seal concentric, (5) bore round and smooth, (6) shaft round and properly finished, (7) seal proper size.

Meeting these conditions is complicated, frequently requires special seal design or the specialized knowledge of National Seal engineers.

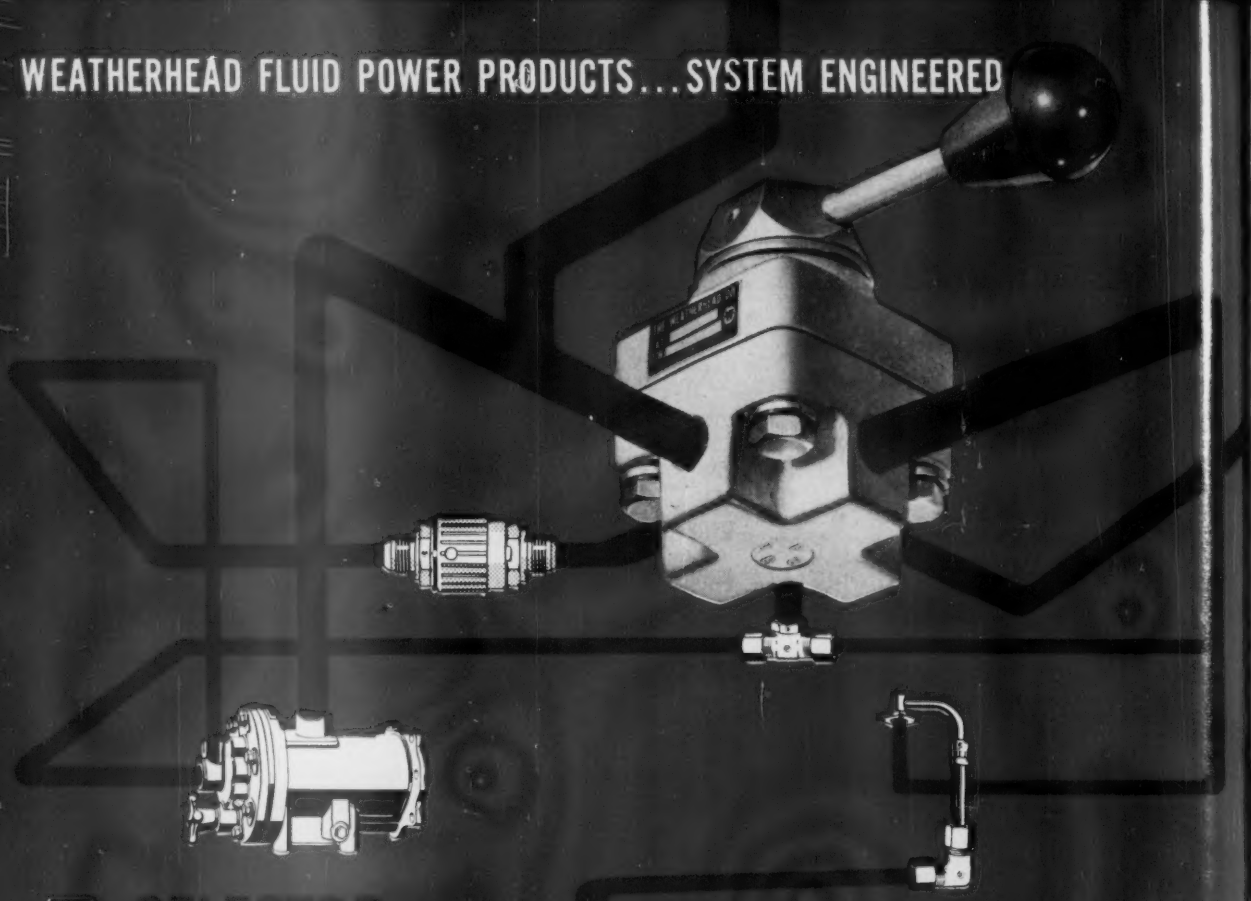
Sealing problems should be anticipated and answered on the board, not in production. Why not call your National Seal engineer now about your current project. He's in the Yellow Pages, under Oil Seals or O-Rings.



**NATIONAL SEAL**
Division, Federal-Mogul-Bower Bearings, Inc.
GENERAL OFFICES: Redwood City, California
PLANTS: Van Wert, Ohio; Redwood City and Downey, California

For More Facts Write No. 254 on Information Card—Last Page

WEATHERHEAD FLUID POWER PRODUCTS...SYSTEM ENGINEERED



# SELECTOR CONTROL VALVES STANDARDIZED FOR ECONOMY... ENGINEERED FOR VERSATILITY

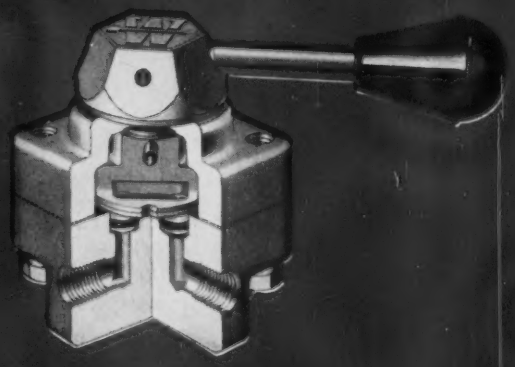
**Unmatched economy** is achieved by standardizing on a 4-way design, adaptable to 2 or 3-way selection. Greater versatility is provided because this advanced control monitors hydraulic or pneumatic flow pressures ranging from zero to 3000 psi.

These outstanding capabilities eliminate need for additional spare parts on intermediate pressure models . . . assure availability from distributor stock . . . simplify varied application needs over wide pressure range.

Weatherhead selector control valves offer: safe, smooth operation ■ positive sealing ■ spring centered, or detent position handles ■ horizontal or vertical ports ■ panel mounting or flexibility within the system.

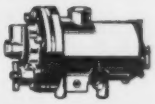
Contact your nearby Weatherhead distributor or write direct for latest brochure.

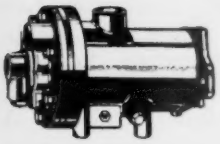
THE WEATHERHEAD COMPANY
CLEVELAND 8, OHIO



**WEATHERHEAD**
**HYDRAULIC POWER**
*Components*

**VARIABLE DISPLACEMENT PUMPS**

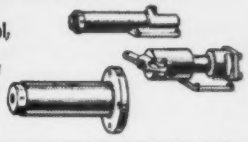




Meet J.I.C., S.A.E., and M.S. standards. Pressures to 3000 psi

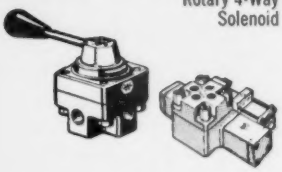
**PUMP CONTROLS**

Pressure Control, Automatic (Constant) Flow Control, Manual Displacement Control



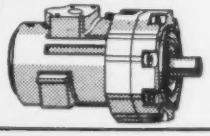
**DIRECTIONAL CONTROLS**

Rotary 4-Way Valves
Solenoid Valves



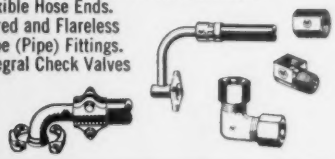
**HYDRAULIC DRIVES**

Fixed Displacement Hydraulic Motors; Reversible Variable Displacement Hydraulic Motors (Integrated Torque and Speed Control)



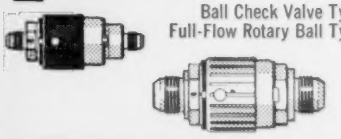
**HIGH PRESSURE HOSE AND FITTINGS**

Swaged, Crimped, and Field-Attachable Flexible Hose Ends. Flared and Flareless Tube (Pipe) Fittings. Integral Check Valves



**SELF-SEALING COUPLINGS**

Ball Check Valve Type
Full-Flow Rotary Ball Type



**THE WEATHERHEAD CO.**
300 EAST 131 ST. • CLEVELAND 8, OHIO
*Distributors in all major markets*
For More Facts Write No. 255 on Information Card—Last Page

# Association News

## I.C.A. Students Train In North Jersey



Miss Irene Gordon, Wallace & Tiernan Inc., was hostess and training director for students from overseas sponsored by the International Co-Operation Administration. The trainees, all of whom speak and write English, are from Brazil, Korea and the Philippines. Miss Gordon is president of the North Jersey Association of Purchasing Agents.

## Correspondence Course Offered By Canada P.A.'s

An opportunity for purchasing agents living and working outside large industrial areas to keep up with advanced purchasing studies is being provided by the Canadian Association of Purchasing Agents.

The course is designed for completion within two years. The study year begins in October and continues until April, followed by yearly examinations in May.

Students are expected to spend two weeks on each study assignment which is prepared by a 12-member committee from the Association and the faculty of the University of Toronto. Completed assignments are sent to the university for grading and comments before being returned to the student.

There are six textbooks required for the two-year course. They include: Business Letter Writing by Warner; Canadian Accounting Practice by Leonard and Beard; Procurement-Principles and Cases by Lewis and England; Purchasing-Principles and Applications by Heinritz; Anger's Digest of Canadian Law; and Introduction to Political Economy by W. Bladen.

Charge for the course is $75 a year. Additional information may be obtained from Dorothy Jutton, assistant secretary - treasurer, Canadian Association of Purchasing Agents, 357 Bay St., Toronto 1, Canada.

## New York Assn Draws Large Attendance

The first meeting of the new season for the New York Purchasing Agents Association had a large turnout to hear John Barkham of *The Saturday Review* speak on "Africa In Upheaval."

Mr. Barkham discussed the unrest in the new African nations, such as Ghana and Nigeria. He said that the "tide for political emancipation for non-whites is running high. Africa is bursting with the independence of new nations."

A companion talk was given earlier in the afternoon at the general forum. Gordon R. MacDonald, a General Electric Co.

(*Please turn to page* 184)

# LET MUELLER MAKE IT!

Mueller Brass Co. of Port Huron is much more diversified than the name "Brass" implies . . . a lot more. In fact, because of its many and varied facilities . . . its *men, methods* and *metals* . . . Mueller is in the unique position of being able to offer true single source service.

MUELLER HAS THE MEN . . . experienced engineers with the ability to work out, creatively, tough design problems, and improve a part or components for production by the most economical method. You get sound engineering plus 44 years of practical metalworking production experience when you "Let Mueller Make It."

MUELLER HAS THE METHODS . . . when you "Let Mueller Make It", you are utilizing one single source that is able to produce parts any one of these ways: as forgings, impact extrusions, sintered metal parts, screw machine products, formed tube or as castings.

MUELLER HAS THE METALS . . . and the materials . . . to produce precision parts in aluminum, brass, bronze, copper, iron, and steel in hundreds of different alloys to meet each exact requirement.

In addition, Mueller Brass Co. has complete and modern facilities for performing all types of finishing and sub-assembly operations. Another plus value is nation-wide sales engineering service.

So, in the final analysis, no matter where you fit in the American industrial picture, whether you're making missiles or mowers . . . and no matter where you're located, it will pay you to LET MUELLER MAKE IT!

**MUELLER BRASS CO.**
PORT HURON 30, MICHIGAN


## Association News

(*Continued from page* 183)

purchasing consultant, discussed "Evaluating Foreign Purchasing."

"As the United States moves toward oriented economy," Mr. MacDonald stated, "it is apparent that many of our businesses are seeking more active participation in international markets.

"Purchasing managers interested in achieving professional stature, as evidenced by full membership in the top management team, must become more expert in understanding world trade."

Harold F. Ward, purchasing agent for International Nickel Co., was the featured speaker at the afternoon forum on Office Supply and Equipment. His topic was "Servicing of Office Equipment On a Personal Call Basis."

### Membership Drive Booms

Robert H. Davis, executive secretary of the New York Association, reports that the membership committee is experiencing a great deal of success with its campaign drive. Applicants for membership include:

W. J. Adams, Western Electric Co.; Moe Eichen, Manhattan Shirt Co.; John M. Fasoli, American Cyanamid Co.; Joel M. Flaster, Zeckendorf Hotels Corp.; and John L. Gomf; Robert E. Gruber, RHG Electronics Laboratory, Inc.; James Allen Jacobs, Yale Express Systems, Inc.; Eric H. Johnson, The Oil Well Engineering Co., Ltd.; and Henry A. Katz, Pioneer Fireproof Door Co.

Other applicants are Igor Mamantov, Millgate Maintenance Corp.; Robert F. Maslan, Baldwin-Gegenheimer Corp.; Charles Sondik, Stelber Cycle Corp.; and John E. Workman, Dome Chemicals, Inc.

## D. C. Assn Will Award Honorary Memberships

The Purchasing Agents Association of Washington, D. C. recently announced the establishment of three honorary memberships.

Walter M. Prichard, Emerson Research Lab., president of the Association, said eligibility for the award is limited to young people who are just entering the purchasing field or to college

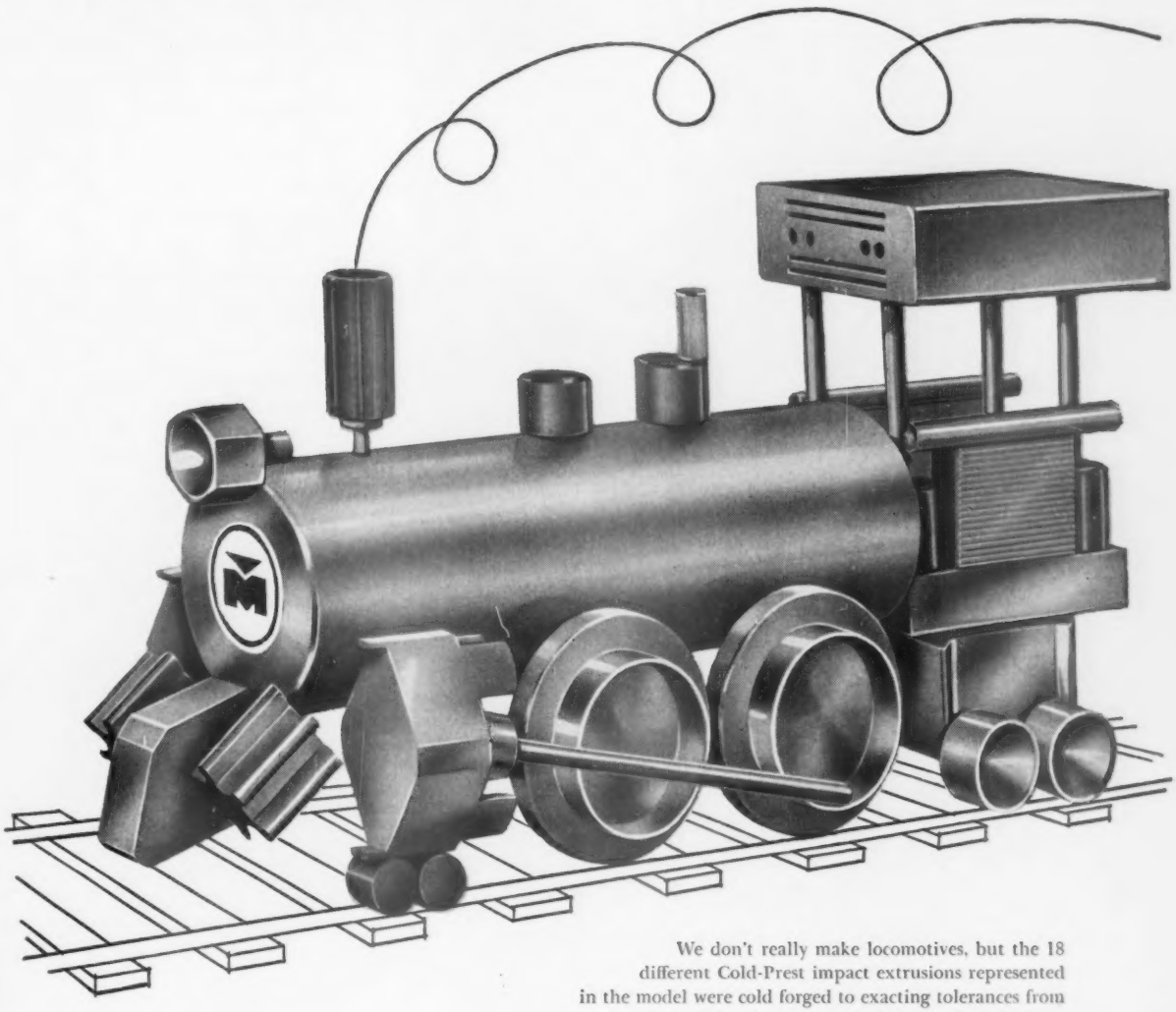
(*Please turn to page* 186)

## Fort Wayne Officers Elected



President of the Association is Charles Douglas (seated, left), Magnavox Co. Vernon Brooks (c.), Majestic Co., and Steve Schultz (r.), Art Iron & Wire Works, are first vice president and treasurer, respectively. Standing (l. to r.) are: George Kohlmeier, Essex Wire Co., national director; and Hugh D. Snow, Baldwin-Ehret-Hill, executive secretary.

# MUELLER CAN MAKE MOST ANYTHING IN IMPACT EXTRUSIONS...



We don't really make locomotives, but the 18 different Cold-Prest impact extrusions represented in the model were cold forged to exacting tolerances from a number of aluminum, copper, brass, and steel alloys.

These parts are employed in products ranging from door closers to missiles. Mueller has also made important advances in the production of copper impact extrusions that are especially adaptable to electronic applications. Cold forgings are precision produced to exacting tolerances and offer the additional advantage of a better finish and appreciable metal savings.

Mueller's flexible facilities for the production of Cold-Prest Impact extrusions make practical long or short runs of simple or relatively complex shapes on an economical basis. In addition, the entire Mueller engineering staff, excellent machining, finishing and assembly facilities are readily available to you when you . . .

## LET MUELLER MAKE IT!

**MUELLER BRASS CO.**

PORT HURON 30, MICHIGAN

Write today for Engineering Manual No. FM-3019




044

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This easy-opening reusable aluminum top, developed by the Central States Can Corporation, is now available on Cleveland Container fibre cans — a natural for packaging spare parts as well as a wide range of products! It protects the contents from air, moisture and dust. The peeling off of the tabbed seal leaves a smooth edge permitting a snug fit when the top is replaced.

***Containers Engineered to Exact Product Needs!***

Durable fibre containers can be made to almost any specification — *and at a surprisingly low unit cost!* Moistureproof, greaseproof, and anticorrosive liners for added protection. A wide choice of labels for distinctive identification.

***Four Diameters Ready for Immediate Delivery!***

An important advantage exists for products which can be packaged in containers with inside diameters of 2 1/16", 2 3/8", 3 3/32", and 3 7/8"—four of the most popular sizes.

***Write for our latest Packaging Brochure.***

THE

**CLEVELAND CONTAINER**

COMPANY

Plants and Sales Offices: Cleveland, Chicago, Memphis, Dallas, Los Angeles, Plymouth, Wis., Jamesburg, N. J., Greensboro, N. C.

6201 BARBERTON AVE. • CLEVELAND 2, OHIO

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED
Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

Sales Offices: Detroit, New York City, West Hartford, Rochester, N. Y., Washington, D.C.

• Abrasive Division at Cleveland

For More Facts Write No. 258 on Information Card—Last Page

## Association News

(*Continued from page* 184)

students who are interested in purchasing as a career.

The awards will entitle the recipient to free membership and will also cover part of the cost of the monthly dinner meetings. Service on committees and regular attendance at the meetings will be a requirement to retain the honorary position.

### Boney Continues Travels To Promote Purchasing

Paisley Boney, J. P. Stevens & Co., has just completed a successful trip to Washington and Chicago, promoting the purchasing profession and the National Association of Purchasing Agents.

In Washington, Boney discussed with the U.S. Department of Commerce the proposed organization of an International Federation of Purchasing, which has the government's endorsement.

Boney also discussed with the State Department the possibility of financial aid for the newly organized National Association of Purchasing Executives of India. Aid would take the form of an educational program for Indian members and would include a purchasing course taught by an American.

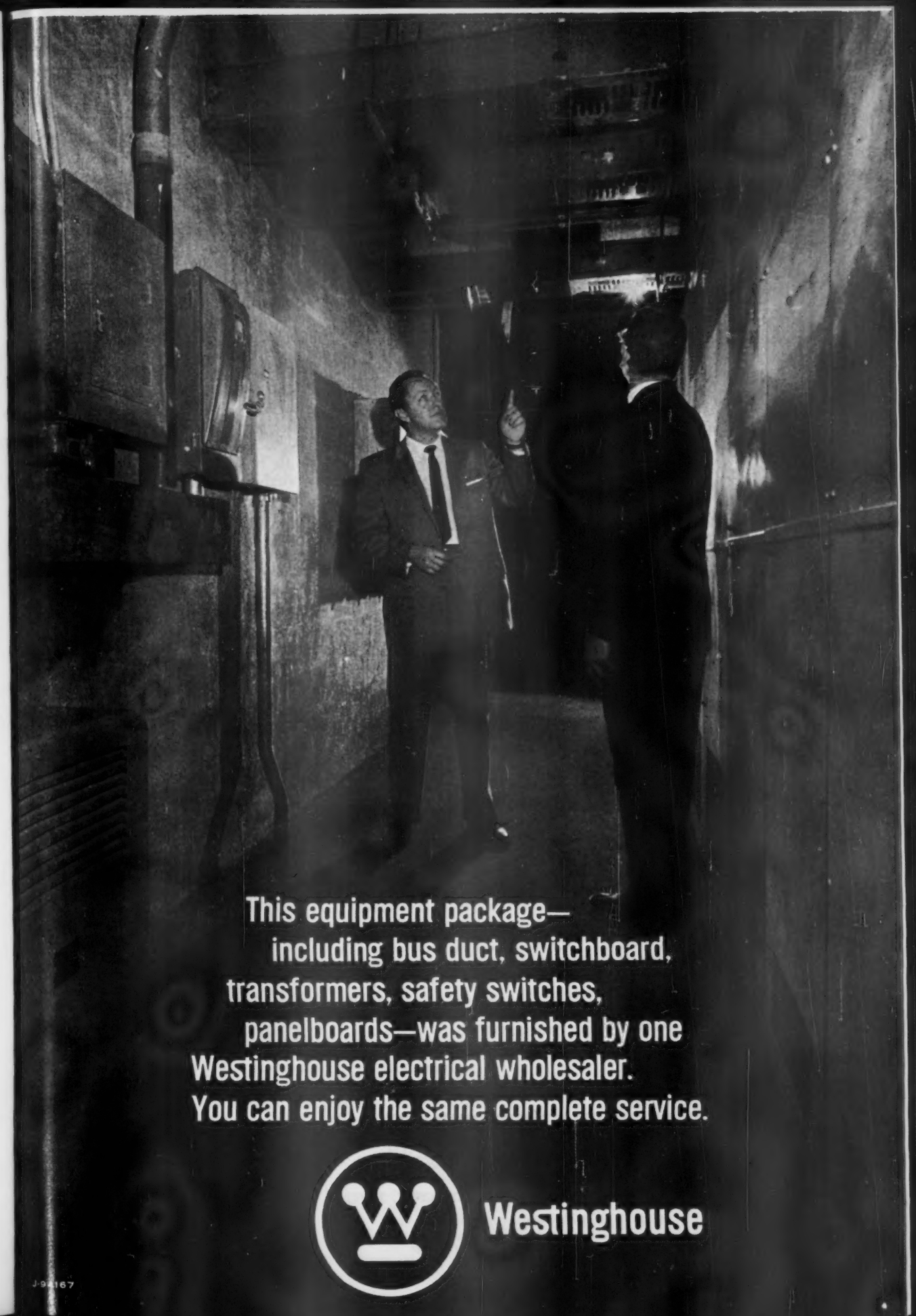
In Chicago, Boney took part in a workshop with professors of purchasing from Harvard Business School. Stanford University's Graduate School and other major universities across the United States.

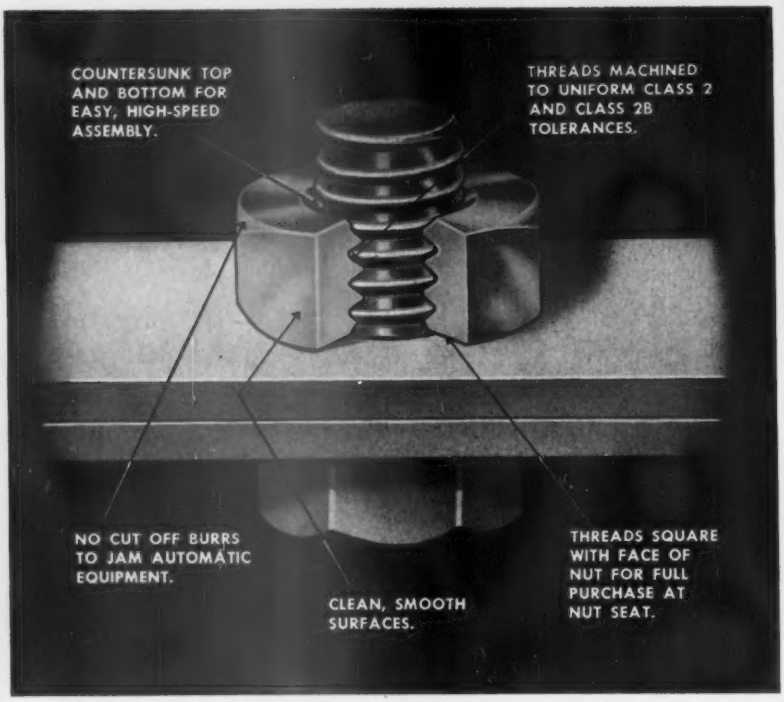
The purchasing educators were brought to Chicago by N.A.P.A. to discuss an expanded educational program in purchasing.

### Toledo P.A.'s Plan Product Exhibit

The Toledo Association of Purchasing Agents is completing plans for its 13th Annual Serv-A-Show. It will be held at the Civic Auditorium, November 1, 2, and 3.

Max E. Thayer is chairman of the event, assisted by Les Lark, co-chairman.


This equipment package—
including bus duct, switchboard,
transformers, safety switches,
panelboards—was furnished by one
Westinghouse electrical wholesaler.
You can enjoy the same complete service.
Westinghouse
J-94167




# CORNELL

## "Machined from the Bar" BRASS NUTS

## REDUCE ASSEMBLY COSTS




*"Machined from the Bar"* brass nuts can save you countless production dollars yearly by speeding your assembly operations and reducing downtime and rejects to a minimum. These precision nuts handle easily, spin on smoothly, tighten securely and, once in place, *stay in place.*

We are specialists in *"Machined from the Bar"* brass nuts. *This is our only product.* Our method of manufacture assures that every nut is a precision product held to close tolerances and checked with go and no-go gauges. This uniformity speeds hand operations and permits trouble-free performance of portable and hopper-fed, high-speed nut setters.

Remember, *"Machined from the Bar"* brass nuts are available *at no extra cost.* Standards are available "off the shelf", shipped the same day the order is received.

*Call, wire or write today: Gene Carroll, Yonkers 8-9400. Teletype, Yonkers 4356.*

*Remember . . ."Machined from the Bar" at no extra cost!*

CORNELL MANUFACTURING COMPANY, INC.

14 SAW MILL RIVER ROAD, YONKERS, NEW YORK

For More Facts Write No. 260 on Information Card—Last Page

## Book Review

### An Introduction to Electronic Data Processing for Business

By Leonard W. Hein
D. Van Nostrand Co. $4.00

If you're wondering whether or not you can use electronic data processing—but don't really know too much about it—you might find this book helpful. It was written for the student who doesn't know too much about EDP either and it covers the basic ABC's of the complicated subject of EDP. The author assumes no background knowledge. But by the time the reader finishes the book he should have a reasonable understanding of what EDP is all about. The author describes how a computer works and how to use it in just over 300 fairly easy-to-read (considering the subject matter) pages.

### Techniques of Value Analysis and Engineering

By Lawrence D. Miles
McGraw-Hill $8.50

L. D. Miles invented the term "value analysis" fifteen years ago. Although he hasn't been the only contributor to value technology by any means, he has probably



Lawrence D. Miles, author of the new book, "Techniques of Value Analysis and Engineering."

made a greater contribution than any other practitioner. It is fitting that he should write the first book on the subject.

The audience that will be in-

(*Please turn to page* 194)

## Economy-minded Purchasing Agents confirm the

# OK in OaKite

### when they look for cleaning economies



There are many places, many ways to economize on cleaning . . . if you help yourself to the expert in-plant service offered by your local Oakite Technical Representative.

Maybe he'll find a way to reduce per-unit production costs on your metal-fabricating prepaint treatment. Or, perhaps discover a manual or mechanized method to save you money on such diverse operations as cafeteria sanitation, paint stripping, spray booth maintenance, cleaning aluminum, washing floors. He has a wide variety of compounds. They are designed to give you highest quality production and maintenance cleaning at the lowest possible cost.

The Oakite man looks to reduce your inventory through consolidation of materials where possible. He recommends using most efficient materials . . . and time and cost-saving methods where not now used. In short, if there are economies to be found, he's a good man to ferret them out. Ask Oakite.

Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

IT'S GOOD PURCHASING POLICY TO ASK OAKITE ABOUT:

- Aluminum Cleaners, Etchants
- Cafeteria Sanitation
- Coach Washing Compounds
- Descalants; Derustants
- Hot Tank Cleaners
- Paint Strippers
- Prepaint Phosphate Treatment
- Steam-Detergent Cleaning Guns
- Barrel Finishing Compounds
- Chemical Sterilization
- Conversion Coatings
- Electrocleaners
- In-Place Cleaning Heat Exchangers
- Plant Maintenance Cleaning
- Spray Booth Maintenance
- other Mechanized Cleaning Methods

OAKITE

over 50 Est. 1909 years' leadership in industrial cleaning

SCIENCE

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AIR SCREWDRIVERS
L2205
P2201
A2101
312
303
New tools! Improved designs! same.....
1525
1495
ELECTRIC
DRILLS
1550
1472
Use SIOUX..... all the way through!

## AIR NUT RUNNERS




## AIR DRILLS




# SIOUX dependability!

Handles, air motors, gears (rpm), chucks, and clutches of the new SIOUX P, A, L prefixed drills, screwdrivers, and nut runners are interchangeable. Any one of a possible 1,000 combinations is available to precisely meet the needs of each job. Disassembly for service or conversion to another job is equally easy.

Air and oil exhausts from the base of the handle through a remote exhaust hose or deflecting silencer so that it can not be blown on the work.

Whether it's an electric drill, screwdriver, air impact screwdriver or one of the new P, A, L series, expect stamina, power, smooth performance, and ease of operation from the SIOUX family of fine tools. Ask for a demonstration!




## ELECTRIC SCREWDRIVERS

**ALBERTSON & CO., INC.**

SIOUX CITY, IOWA, U.S.A.

SOLD THROUGH DISTRIBUTORS IN U.S., CANADA AND OVERSEAS. FIND YOUR NEAREST U.S. DISTRIBUTOR UNDER "TOOLS, ELECTRIC" IN THE YELLOW PAGES.

▲ AIR & ELECTRIC IMPACT WRENCHES • DRILLS • SCREWDRIVERS • NUT RUNNERS • SANDERS • GRINDERS
▲ ELECTRIC POLISHERS • FLEXIBLE SHAFTS • PORTABLE SAWS • VALVE GRINDING MACHINES ▲ ABRASIVE DISCS

# your GAYLORD man is a corrugated connoisseur

He has the knowledge and experience to give you sound advice about the type of corrugated or solid fibre board that bests suits your packaging situation.

He probably can suggest several ready-made answers to the container question foremost in your mind right now. After you make your choice, Gaylord tailors your box from a practically unlimited range of board.

Stop wondering if your packaging is practical. Call your nearby Gaylord Man now and find out!



**CROWN ZELLERBACH CORPORATION**
**GAYLORD CONTAINER DIVISION**

IN CANADA • CROWN ZELLERBACH CANADA, LTD. VANCOUVER, B. C.

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

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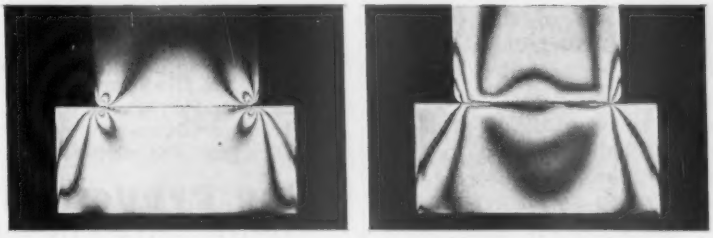
# CROPS OR POLES...BEARING MUSCLE HELPS PLANT 'EM BOTH!

From plowing and seeding to digging post holes, the farmer *depends* on his tractor and implements for plenty of muscle, when and where needed. It's no wonder he looks especially for stamina and proven dependability in the new equipment he buys. For this reason, farm equipment manufacturers select vital components with great care. Leading tractor and implement makers, for instance, use Bower Roller Bearings as original equipment. Bower's original contributions to advanced bearing design, plus painstaking quality control, reduce bearing maintenance and failure to a practical minimum . . . help manufacturers keep their equipment rolling. For *your* bearing requirements, Bower provides a complete line of tapered, straight and journal roller bearings. Bower Roller Bearing Division, Detroit 14, Michigan.

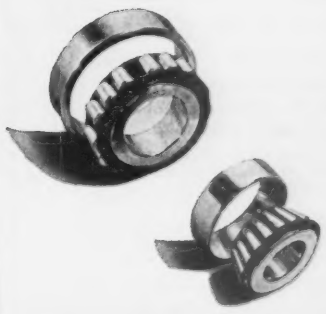
BOWER
ROLLER BEARINGS

tapered
cylindrical
journal

DIVISION OF
FEDERAL-MOGUL-BOWER
BEARINGS, INC.



Roller bearing life and capacity are linked to stress distribution. Photoelastic studies indicate both magnitude and distribution of stress. Identical loads show dangerous edge-load stress build-up in conventional roller (left) . . . Bower "Profiled" roller (right) eliminates points of excessive stress concentration. Result—improved load-carrying capacity, increased life.



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# Send for this NEW FREE FOLDER *of sample* RECORDING CHARTS



*Send for this free folder of GC circular, strip, rectangular and "special" recording chart samples. It'll help you compare for accuracy, check for quality. And remember these seven reasons why GC can supply all your recording chart needs best:*

1. **ONE SOURCE OF SUPPLY** simplifies ordering by centralizing all of it with one dependable supplier.
2. **SIMPLIFIED INVENTORY,** through periodic, automatic shipment from GC, keeps your stock room free.
3. **CONSISTENT HIGH QUALITY,** guaranteed by GC's unfaltering quality control, means perfect job results every time.
4. **LOWER COST,** through the modern production methods of the world's largest chart manufacturer and supplier, means big savings to you.
5. **PERSONALIZED SERVICE,** through GC representatives who are ready to furnish you with sample charts at no obligation, takes the guesswork out of buying charts.
6. **SPECIAL CHARTS,** special grid designs or special papers to handle any special requirements you may have...are routine to GC.
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## Book Review

(*Continued from page* 188)

terested in reading a book on value analysis has grown tremendously in the last fifteen years. There are now several thousand full-time value practitioners today and there may be several hundred thousand part-time analysts. Miles' book should stimulate further interest in the field. In addition to making industry more value conscious, the book may even serve as a means for engineering schools to initiate courses in value analysis.

The book covers value analysis from a to v. There are eleven chapters and literally hundreds of case histories showing how dollars-and-cents results can be achieved with value techniques. The author treats value analysis as a separate technique closely related to—and linking—purchasing and engineering. The author says that "effective value analysis greatly improves the grade and degree of purchasing work, and efficient execution of certain purchasing activities greatly improves the degree and amount of value analysis accomplishment."

Miles' book is interesting and worthwhile reading both for the P.A. who knows about VA and for the rare P.A. who may want a primer in the subject.

### Secretaries On The Spot

Edited by Galen Stutsman and Elfreda M. Rusher
National Secretaries Assoc. $2.25

Every purchasing agent will want his secretary to read this book. It represents the constructive efforts and experiences of hundreds of top-flight secretaries—all members of the National Secretaries Association.

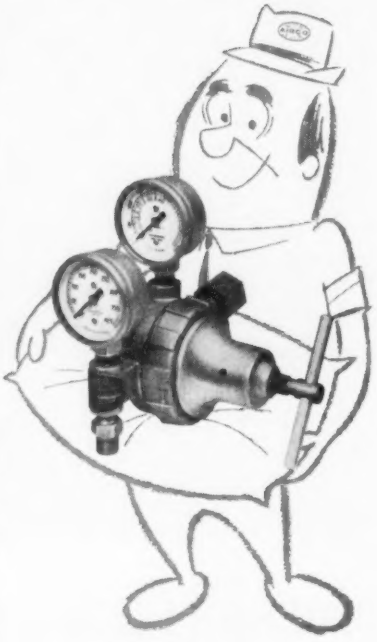
The editors compiled a series of problems (and their solutions) faced by secretaries. The problems are classified according to their general nature: **(1)** the secretary herself; **(2)** the new job; **(3)** human relations; **(4)** communications; **(5)** office records; **(6)** office organizations; **(7)** secretarial duties; and **(8)** special situations,

(*Please turn to page* 198)


*Airco design scoop!—*

# NEW 9100 SERIES

## INDUSTRIAL GAS REGULATORS



**Top quality equipment at lower cost—for welding, cutting, brazing, heating**

**Inverse type seat design** gives you the constant working pressure you need—right up to the cylinder's "empty" point . . . *Exclusive large diaphragm plate design* gives precise pressure regulation in a small regulator body—no bulky case required . . . *Phase dampening* keeps internal friction low, response to pressure change smooth and accurate.

This is Airco's new, full size, single stage 9100 Series—industry's finest industrial gas regulators at a new low price.

**Phone your nearby Airco Distributor now.** Let him fill all your welding and cutting needs. He's listed in your Classified Telephone Directory under "Welding Equipment and Supplies."

**AIR REDUCTION**
. . . represented by over 700 Authorized Airco Distributors from Coast to Coast

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TO CUT TUBING COSTS
ON THE DRAWING BOARD

# Call Us Early

Value analysis of tubing problems is one of the services Rochester offers refrigeration people. It's a fast way to uncover savings and shrink costs on the drawing board. A Rochester Tubing Specialist might recommend a fresh application that will result in assembly short cuts or reduced waste on your line. And what Rochester recommends, Rochester delivers. Take end processing, as an example. Rochester has full facilities for swaging, piercing, shearing, upsetting, flattening and beading. In addition, Rochester Steel Tubing can be delivered ready for your production line in flat serpentines, cut lengths, or coils up to 3,000 ft. Available either single wall welded, or double wall brazed. To cut your tubing costs on the drawing board, contact the Rochester Tubing Sales Manager. He'll send help fast.



STEEL TUBING BY ROCHESTER PRODUCTS

ROCHESTER PRODUCTS DIVISION OF GENERAL MOTORS, ROCHESTER, NEW YORK

For More Facts Write No. 267 on Information Card—Last Page

# If you have anything to do with plant

# *take a good look at*

## Chances are you can get better lubrication... and save money in the bargain

To many people grease is an unglamorous and confusing subject. This is a shame, because grease is really a spectacular sort of lubricant. Nevertheless, people who don't understand it tend to forget it.

As a result, they run into all sorts of trouble. Sometimes they spend too much, buy the wrong thing, or misapply what they do buy. Sometimes they neglect to apply it at all.

True, a few years back, greases could be a headache, principally because in many cases the "right" grease simply didn't exist. To handle some of the tougher jobs grease-makers came up with the weirdest sort of concoctions. No wonder people put grease in the product-to-be-forgotten class.

But times have changed.

Grease-makers have found out a lot. They're making *better* products . . . and Sun's among the leaders in producing a full line of modern maintenance greases.

### WHAT IS A GREASE?

It always pays to be sure you know what you're talking about. At least, asking such an academic question may bring to light some worthwhile points you've forgotten. Simply, a grease is a thickened oil. By his choice of thickener, a grease-maker can make a grease with high resistance to water, to high temperatures, or to both. By using additives and inhibitors he can get certain special properties, such as tackiness, high resistance to deterioration, and so on.

You might think of the thickener as a sponge that sops up oil, thus providing a means of keeping an oil *on the job.*

Greases come into their own wherever it's hard to keep oil where it belongs, or where it's impracticable to keep replacing oil that runs away.

You can't make a good grease with crankcase drainings. You must *start* with a very carefully chosen high-quality oil. The better oil makes the better grease.

### WHAT MAINTENANCE GREASES ARE AVAILABLE?

There are several principal types: The work horses, made with calcium and sodium soaps, and the glamour greases, usually made with lithium soaps, and sometimes with other soaps or other kinds of thickeners.

Most greases come in several consistencies, or "thicknesses". How they stack up is best explained in the simple chart below.

### WHAT ABOUT A SINGLE MULTIPURPOSE GREASE?

Despite what you may have been told, there is no such product. That is, there is no *single* consistency of a *single* type of grease that can handle *every* operating condition. This is the unvarnished truth.

| | | Handle Water? | OK For High Temperatures? | What Speeds & Loads? | Relative Cost |
|---|---|---|---|---|---|
| THE WORK HORSES | Calcium Soap Grease | YES | NO | ANY | LOW |
| | Sodium Soap Grease | NO | YES | ANY | LOW |
| THE GLAMOUR GREASES | Lithium Soap Greases & Others | YES | YES | ANY | HIGH |

# lubrication . . .

# *what's happened to grease*

### HOW TO MAKE UP YOUR OWN MIND

You're in luck here. Modern greasemakers are just as eager as you are to cash in on simplicity. So they're cutting down the number of greases they offer, and this makes grease selection simpler for you.

You can start yourself on the way to grease modernization by asking yourself just a few easy questions:

What do I want the most?

- Good lubrication?
- The economy of simplification?
- The economy of low initial costs?
- Or some combination of these?

Of course you want good lubrication. And this is *always* available, because today, somebody, somewhere, has the grease that will stand up to whatever working conditions you've got to handle. The grease you need exists.

So now you're down to the remaining questions: Simplification? Low initial cost? Or a combination? The chart at the bottom of this page tells the story.

### HOW MUCH SIMPLIFICATION?

Sometimes you can simplify yourself into spending *more* money, not less. Just the same, most people buy too many greases.

*Many plants can do quite well with a single maintenance grease.* This is hard for many people to believe. But it can be done, economically, in an amazing number of plants. Yours may be one of these. Many plants, of course, need two or three greases, but rarely any more.

When you're simplifying, the trick's in knowing when to stop.

### THE VITAL LAST STEP

Now . . . you need to go only one step farther: You need to find *products* that will handle *your* needs.

And you need *savvy*, to analyze your needs, to pick the best product mix, and to apply wisely the products you buy.

Again the answer's simple. Sun has the *products* and the *savvy*. If you're really interested in getting the most out of grease, your Sun man can help you. Call him. Put the challenge to him. Call him today and tell him that you want to talk grease.

### TECHNICAL BULLETIN

If you're not disposed to talk, then you should ask for Sun's new Technical Bulletin 69. It gives complete information on all of the basic types of maintenance greases in a comprehensive, orderly fashion, and lists full details on the major greases Sun makes.

For your copy write to:

**SUN OIL COMPANY, Dept. 1608 WALNUT STREET, PHILADELPHIA 3, PENNSYLVANIA.**

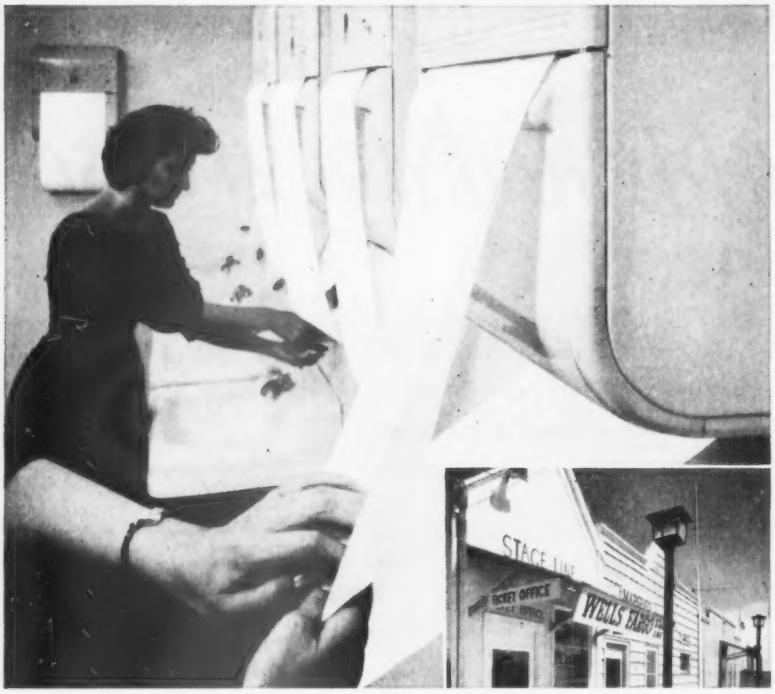
In Canada: Sun Oil Company Limited, Toronto and Montreal. Or call the Sun representative located nearest you.



| | Relative Grease Costs | Storage & Handling Costs | Chances of Failure Through Misapplication | REMARKS |
|---|---|---|---|---|
| Simplification? | HIGH | LOW | LOWEST | Usually, you'll need a glamour grease or two, and this will increase grease costs. This is not necessarily true in plants with narrow ranges of operating conditions or where you don't **need** one grease to handle, for example, high temperatures and water. In these cases you can often achieve simplicity by using one or two modern calcium or sodium greases in place of half a dozen. |
| Low initial costs? | LOW | HIGH | HIGHEST | When you have no condition that **requires** glamour greases, you can use moderate-cost calcium and sodium greases. This keeps grease costs down, but they can be overbalanced by higher storage and handling costs. Failures from misapplication are also more likely. |
| Combination of simplification and low initial cost? | MODERATE | MODERATE | MODERATE | Just about always the best solution. The bigger the plant, the more varied the needs, the more important a compromise becomes. Of the three, this is the hardest course to chart; to follow it wisely, expert advice is a must. |



*Cotton toweling supplied to the Kansas Centennial Exposition and Frontier Town, Wichita, Kansas, by Wichita Towel & Linen Service, Keep Klean System.*




# Everything's up-to-date in Frontier Town— cotton toweling included!

The "Old West" lives again in Frontier Town—the colorful amusement center which keynotes the Kansas Centennial Exposition in Wichita. In addition to this authentic replica of a pioneer village, the 220-acre exposition area includes a "Modern Midway"—where the newest and finest products from the "Heart of America" are on display. Estimated attendance for the season: more than 1,500,000!

To accommodate such vast crowds, every detail was designed for maximum efficiency. Washrooms in the air-cooled buildings, for example, were equipped with Fairfax continuous cotton toweling. Well-known for consistently top quality, it maintains excellent housekeeping standards, reduces fire and plumbing hazards—and completely eliminates a tremendous waste-disposal problem!

Cotton toweling can add these advantages—and more—to *your* operation. Why not look into it today? For free booklet, write Fairfax, Dept. S-10, 111 W. 40th St., New York 18.



**Here's How Linen Supply Works...**

You buy nothing! Your linen supply dealer furnishes everything at low service cost—cabinets, pickup and delivery, automatic supply of freshly laundered towels and uniforms. Quantities can be increased or decreased on short notice. Just look up LINEN SUPPLY or TOWEL SUPPLY in your classified telephone book.

CLEAN COTTON TOWELS... SURE SIGN OF GOOD MANAGEMENT

**Fairfax·Towels**

WEST POINT TEXTILES

WELLINGTON SEARS COMPANY, 111 W. 40th STREET, NEW YORK 18, N. Y.

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## Book Review

(*Continued from page* 194)

which include the coffee break and the office wolf.

Typical of the problems discussed in the chapter on human relations is a situation where a secretary found that her ideas were being pirated by a clerk with whom she worked part-time. When she made a suggestion, he would say it was of no value but would later present it to the boss as his own.

Discussion points built around this problem cover how suggestions should be presented. The actual solution of submitting a written memo to the boss outlining further suggestions was one of several which would have eliminated the problem.

### The Folklore of Management

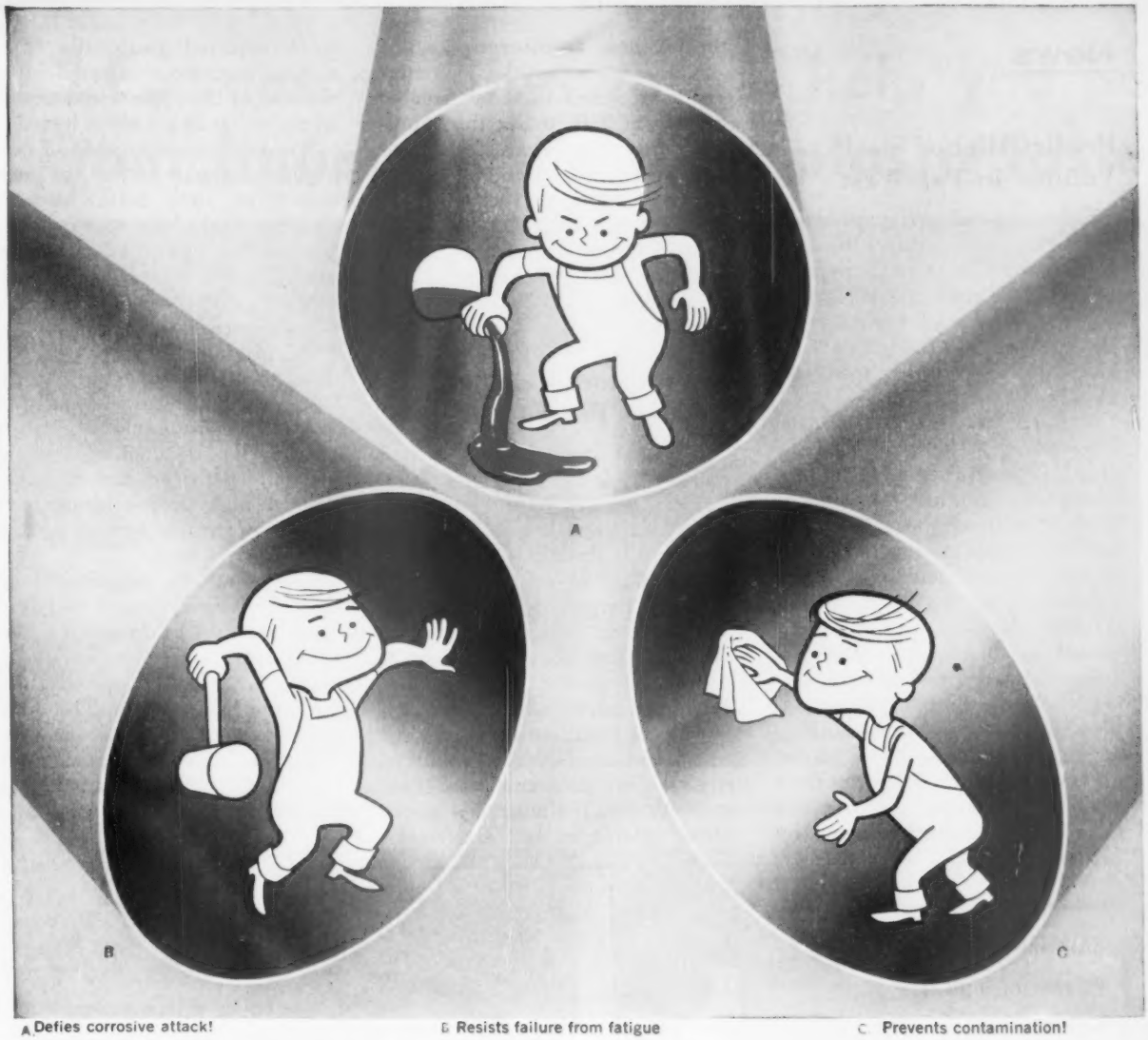
By Clarence B. Randall
Little, Brown & Co.
and Dun & Bradstreet $4.75

Clarence B. Randall, former head of Inland Steel and author of several popular books on business subjects, wrote a series of articles for *Dun's Review and Modern Industry*. The series was so popular that it has been made into a book. Purchasing executives will find "The Folklore of Management" both informative and entertaining.

### The P.A.—Yesterday and Today

They will be particularly interested in Chapter XIII, "The Myth of the Slick Purchasing Agent." The chapter foreward says the P.A. is "to salesmen an ogre—bullying, crafty and venal. To management, a lackey—indispensable but unrespected, and not always trusted. Such is the purchasing agent of legend, whose image is fast being displaced by the reality of today's trained, responsible purchasing executive."

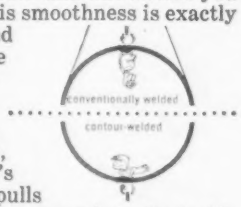
After reading Chapter XIII first, the P.A. will then want to read the other 15 chapters; each deals with a business folklore. Particularly interesting are the chapters on the "magic expense account" and the "Communist supermen."



A Defies corrosive attack! B Resists failure from fatigue C Prevents contamination!

## The "Gravity Kid" shows how ONLY CONTOUR-WELDING COMBINES ALL THREE BENEFITS IN A SINGLE TUBE

Feel the inside surface of a Contour-welded* stainless tube. It's so smooth you barely feel the weld. Even with a microscope you see fewer crevices and flaws than you find in other makes of tubing. This smoothness is exactly the reason why Contour-welded tubing is so resistant to corrosive attack...to product incrustation ...and to failure from fatigue.




Contour-welded tubing is smoother than other tubing, welded or seamless, because it's welded at the bottom. Gravity pulls the metal down so that the weld corresponds to the inside contour of the tube. There's no bulge on the inside surface. Even on the outside surface, the seam closely conforms to the tubing shape.

Just the opposite occurs in conventionally-welded tubings. There, gravity pulls the molten metal down into the tube. This can form a bead that is difficult to remove by cold working. And cold working can lead to undercuts that become focal points for corrosive attack, incrustation, and even failure from fatigue.

Contour-welded tubing is smoother than seamless. That's because it's formed from uniformly rolled strip steel, whereas seamless must be produced by extruding or piercing.

But get the full story. Write today for our free 48-page manual, which describes tubing sizes from 1/8" to 40" O.D., in stainless and high alloy steels, titanium, zirconium, zircalloy, and Hastelloy**.

*Trent's patented process — U.S. Patent 2,716,692

**Trademark Haynes Stellite Co.

**TRENTWELD®** Stainless and High Alloy Tubing

Trent Tube Company, a Subsidiary of Crucible Steel Company of America, General Offices and Mills: East Troy, Wisc.; Fullerton, Calif.

For More Facts Write No. 270 on Information Card—Last Page

## News

### Predict Higher Steel Volume in Far West

Sales of steel mill products in the seven western states this year will probably be up strongly from 1960, says Kaiser Steel Corporation. In its annual report to far western steel purchasers, the company says that sales gains are also predicted for 1962.

Volume in 1960, at 6,270,000 tons was up 1% over the previous year, says Kaiser. Within the seven-state region, 41% of the steel went to southern California and 33% went to northern California. Oregon and Washington accounted for 14% and Utah, Arizona, Nevada, and Idaho received the balance.

Steel shipments were high during the first part of last year, because of an inventory buildup of strike-depleted stocks. After midyear, however, deliveries from steel mills dropped sharply due to reduction in stocks caused by the business downturn.

Kaiser notes that the 1962 market is expected to show sizeable gains over 1961 under the stimulus of inventory accumulation and increased consumption. Broad gains in economic activity and steel use are expected to receive support from increased capital spending and higher defense requirements.

### Visual Stock Control Reduces Plant Costs

A visual stock control system has cut costs for paperwork, personnel, and accounting machines for three English factories, says the British Productivity Council.

According to an article in its bulletin, *Target*, stock control of 27,500 items at three plants of British Nylon Spinners, Ltd. was formerly handled by machine posting. Ledger cards were required for each item to record receipts and issues, the amount in stock, the economic ordering quantity, and the minimum stock. Three operators and six clerks were required to handle three posting machines. In some cases, the cost of the paperwork exceeded the value of the stock items.

The new visual method of controlling primarily noncritical items —such as nuts, bolts, washers, clothing, and cleaning supplies— has reduced all of these costs considerably.

Every item is now stocked in three groups:

(1) *Minimum Stock.* Enough to meet normal demand until an existing order can be delivered.

(2) *Ordering Level.* Enough to meet normal demand until an order can be placed and delivered through normal procedures.

(3) *Free Stock.* Anything above the ordering level.

Each group is tagged with its own color adhesive tape. Only two cards are used in the system. One is an order card that shows the unit, code number, specification, and ordering quantity. The other is an "urgent" card, which indicates the unit, code number, specification, and minimum stock.

Both these cards are kept in a

(*Please turn to page* 204)


SKINNER 2-way solenoid valves for high flow, high pressure applications



These two-way solenoid valves handle high flow of air, oil, water, inert gases and other media under high pressure in industrial and commercial applications. They are available to meet the following specifications:

**Type**—Two-way normally closed, and normally open
**Orifice Size**—¼" diameter
**Cv Factor**—.758
**Pipe Size**—¼" NPTF (Dry Seal)
**Minimum OPD**—5 PSI
**Maximum OPD**—R2—normally closed—200 PSI AC or DC service
R2H—normally closed—1250 PSI for AC service; 500 PSI for DC service
R2H6—normally closed—1000 PSI for DC service
RP1—normally open—150 PSI AC or DC service
**Temperature Range**—Minus 40°F to plus 180°F
**Voltage**—Most AC and DC voltages and frequencies
**Leakage**—Bubbletight
**Internal Parts**—Stainless Steel
**Body**—Forged naval brass

For complete information, contact a Skinner Distributor listed in the Yellow Pages or write us at Dep't. 600.

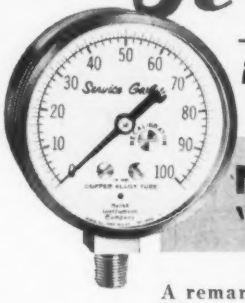
SKINNER ELECTRIC VALVES

THE CREST OF QUALITY

SKINNER ELECTRIC VALVE DIVISION
SKINNER PRECISION INDUSTRIES, INC. • NEW BRITAIN, CONNECTICUT, U.S.A.

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It fits in
—to a wide range of in-plant and original equipment needs



New MARSH "Service Gauge"

**A remarkable series of 2½" gauges brings you quality, accuracy and stamina —along with REAL economy!**

Ranges: 15-30-60-100-160-200-300-600-1000 lbs. and 30" vacuum ¼" bottom connection.

All have strong 2½" bonderized case and brass screwed ring with bevelled glass. All have new Marsh "Read-easy" dial. All are *standard* with Marsh "Recalibrator." Every gauge is guaranteed accurate within 1% of dial reading.

Two types cover wide range of needs: Type 11 has silver-brazed copper alloy bourdon tube and bronze-bushed movement. Type 11S has 316 stainless steel bourdon tube with 303 stainless tip and socket; stainless steel and monel movement.

*Ask For New Bulletin*

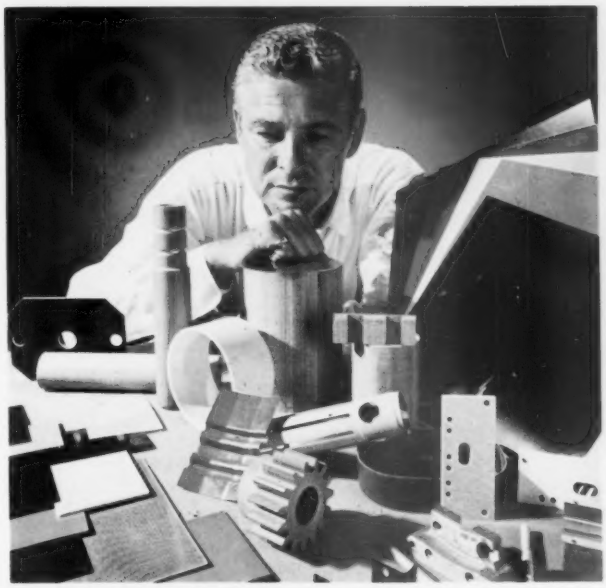
MARSH INSTRUMENT COMPANY Dept. G, Skokie, Ill.
*Division of Colorado Oil and Gas Corporation*

Marsh Instrument & Valve Co., (Canada) Ltd., 8407 103rd St., Edmonton, Alberta, Canada • Houston Branch Plant, 1121 Rothwell St., Sect. 15, Houston, Texas • Eastern Seaboard Warehouse: Marsh Instrument Company, 1209 Anderson Ave., Fort Lee, N.J.

GAUGES • THERMOMETERS • VALVES

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# 116 reasons why we can help you put your finger on the right plastic faster



85 PHENOLITE® laminates...



3 thermoplastics—nylon, DELRIN,* PENTON†



16 grades of Vulcanized Fibre...



12 grades for printed circuits...

This will give you an idea of how surely National can help you pinpoint exactly the plastic you want. National has the broadest line in the industry, including standard forms, precision-fabricated parts, and a huge stock of many grades ready for immediate shipment. For fast help, samples, or more information, contact your nearby NVF sales office. You'll find the 'phone number in Sweet's Product Design File 2b/Na. Or write NVF, Dept. TI, Wilmington, Del. It's a direct line to the one best material per dollar of design performance.

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* DELRIN IS A DU PONT TRADEMARK FOR THEIR ACETAL RESIN. † PENTON IS A HERCULES TRADEMARK FOR THEIR CHLORINATED POLYETHER RESIN.




# Free booklet tells you what to look for in a pressure-sensitive tape

Here's a handy, new booklet that gives clear, concise answers to nearly any pressure-sensitive tape problem. It's based on Johns-Manville's long years of experience in the manufacture of tapes for electrical and industrial applications. It's called "How To Select A Pressure-Sensitive Tape," and tells you how to effect important economies; help speed production; eliminate knotty mechanical difficulties. It tells:

- Why the adhesive qualities of a tape are as important as the backing material.
- What causes tape failure; and how to prevent it.
- A glossary of terms associated with pressure-sensitive tapes.
- A complete list of authoritative technical data files available.

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Please send me a free copy of "How To Select A Pressure-Sensitive Tape."

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## PROTECT WITH GER-PAK®

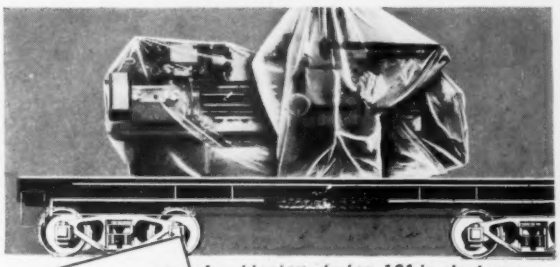
# Polyethylene

**BAGS • LINERS**
**SHEETING • TUBING**
**—industry's most versatile, low-cost material for packaging • shipping • storing**



**BAGS and LINERS**

**for drums, cartons, cans, pails**
• Choice of bags and liners in rolls perforated for easy detachment, or handy flat individual liners • Up to 114 inches wide, no limit to length • Available gusseted or non-gusseted • Tie-off or peel-over construction



**SHEETING**

**for shipping, storing, 101 in plant-uses**
• Inexpensive tarps give all-weather protection for any size product in transit • As a pre-packaging material, eliminates need for special weather-tight containers • Comes in seamless widths up to 40 feet wide



**TUBING**

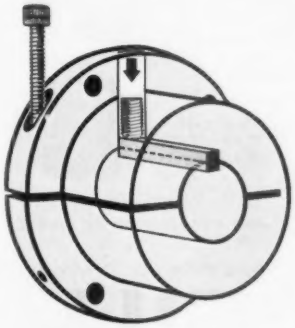
**as covers, sleeves, containers**
• Lay-flat tubing in a wide variety of lengths, widths, thicknesses to meet all requirements • For positive end-sealing: either heat seal or use new, super-adhesive GER-PAK Polyethylene MIRACLE TAPE

**GERING**
**PLASTICS**
division of STUDEBAKER-PACKARD CORP.
Kenilworth, N. J.

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# ONE SCREW IS HALF AN ORDER

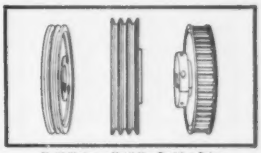


If you buy sheaves, here's a sure way of getting increased value—just buy the Worthington sheaves with the Two Golden Screws . . . they probably cost no more than your present ones.

The Golden Screw on the left is an exclusive Worthington feature that locks the hub securely on the shaft. It permits tightening the set screw without distorting the hub. And the two-piece hub-and-rim design makes installation fast and easy.

The second Golden Screw is the one at the right which is the set screw. See how it turns down to lock the key securely in place. This prevents potentially dangerous key drift.

How important are the Golden Screws? Decide their value in light of the maximum possible damage to equipment or personnel caused by a loose key. Then remember—you probably pay no more for the Golden Screws in a Worthington sheave.



Multi-Wedge Multi-V Positive Drive

Hubs with Two Golden Screws are supplied with all Worthington sheaves, such as those shown here. And you can buy the hubs alone or with special adapters for use with any shaft-mounted part you manufacture. For information, call your Worthington Distributor in the Yellow Pages. Or write Worthington Corporation, Section 79-39, Oil City, Pa.

WORTHINGTON

PRODUCTS THAT WORK FOR YOUR PROFIT

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**TEST SHIPMENT?**
**REGULAR SUPPLY?**

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- **broad experience in manufacturing silicates and helping industry use them (a century's accumulation)**

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**SOLUBLE SILICATES**
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Associates: *Philadelphia Quartz Co. of California Berkeley & Los Angeles, California; Tacoma, Wash. National Silicates Limited, Toronto & Valleyfield, Canada.*

**PQ PLANTS:** ANDERSON, IND.; BALTIMORE, MD.; BUFFALO, N.Y.; CHESTER, PA.; JEFFERSONVILLE, IND.; KANSAS CITY, KANSAS; RAHWAY, N.J.; ST. LOUIS, MO.; UTICA, ILL.

For More Facts Write No. 276
on Information Card—Last Page


## News

(*Continued from page* 200)

plastic pocket and stored alongside the item—with the order card on top. When the free stock supply is used up and the ordering level is reached, the order card is sent to the purchasing department. Purchasing orders the material and returns the order card, where it is placed beneath the "urgent" card.

In the event that delivery is held up or an emergency arises, the minimum stock is used and the "urgent" card is sent to purchasing for action.

### Unfair Labor Practice Charges Set Record

Charges of unfair labor practices filed with the National Labor Relations Board are at an all-time high.

The board says that 3437 charges were received during the second quarter of 1961, the greatest three-month total in its history. Allegations of unfair labor practices were brought against employers in 2222 cases and against unions in the remaining cases. The charges were filed by labor organizations, employers, and individuals.

#### More Representation Petitions

An upward trend continued in representation case filings, in which employee elections were requested. The 2815 representation petitions were 1% greater than the filings in the first three months of the year.

Petitions for collective bargaining elections made up 2620 of the representation cases filed. The remainder were petitions to decertify unions.

During the April-June quarter, 1708 collective bargaining elections were held in which 101,414 employees cast ballots. Unions won 54% of the cases—compared with 59% in the first quarter.

The five-member NLRB issued 767 decisions and orders, up 8% from the previous quarter. The General Counsel issued 299 formal complaints based on charges filed against employers, unions, and both employers and unions.

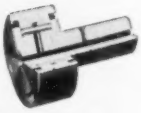

McGILL
**CAMROL®**
cam followers




CAMROL (sealed or unsealed) bearings eliminate procurement and assembly problems involved in "building-up" bolt, bearing and washer units for cam follower and track, guide and support roller applications. A full complement of heavy-duty needle rollers and the heavy outer race provides high radial and shock load capacity in small radial space. Available sizes from ½" to 4", also new heavy-duty stud series.

**AVAILABLE WITH INTEGRAL SEALS**

CAMROL SCF Series bearings with integral seals are interchangeable with CF Series bearings. Prelubrication is locked in and contamination is sealed out to insure longer, trouble-free bearing life.



**CYR Series**
An inner race provides for shaft mounting. Available with or without seals.



*For data on the complete line of McGill heavy-duty needle roller bearings, write for Bearing Handbook No. H-62.*

*engineered electrical products*
**McGILL®**
*precision needle roller bearings*

McGILL MANUFACTURING CO. INC., Electrical Div.
550 N. Campbell St., Valparaiso, Indiana

For More Facts Write No. 277
on Information Card—Last Page

# FROM NEARLY A CENTURY OF QUALITY




# NICHOLSON HOLE SAWS

A complete range of tools and accessories for every hole-cutting job 9/16" through 6" in Shatterproof High Speed Steel and Magicut Carbon.

Produced by the same traditional devotion to quality that marks other Nicholson products, these hole saws are a planned addition to Nicholson hacksaws and band saws. Try them: Your Nicholson Saw Distributor* should have a well-balanced inventory on hand.

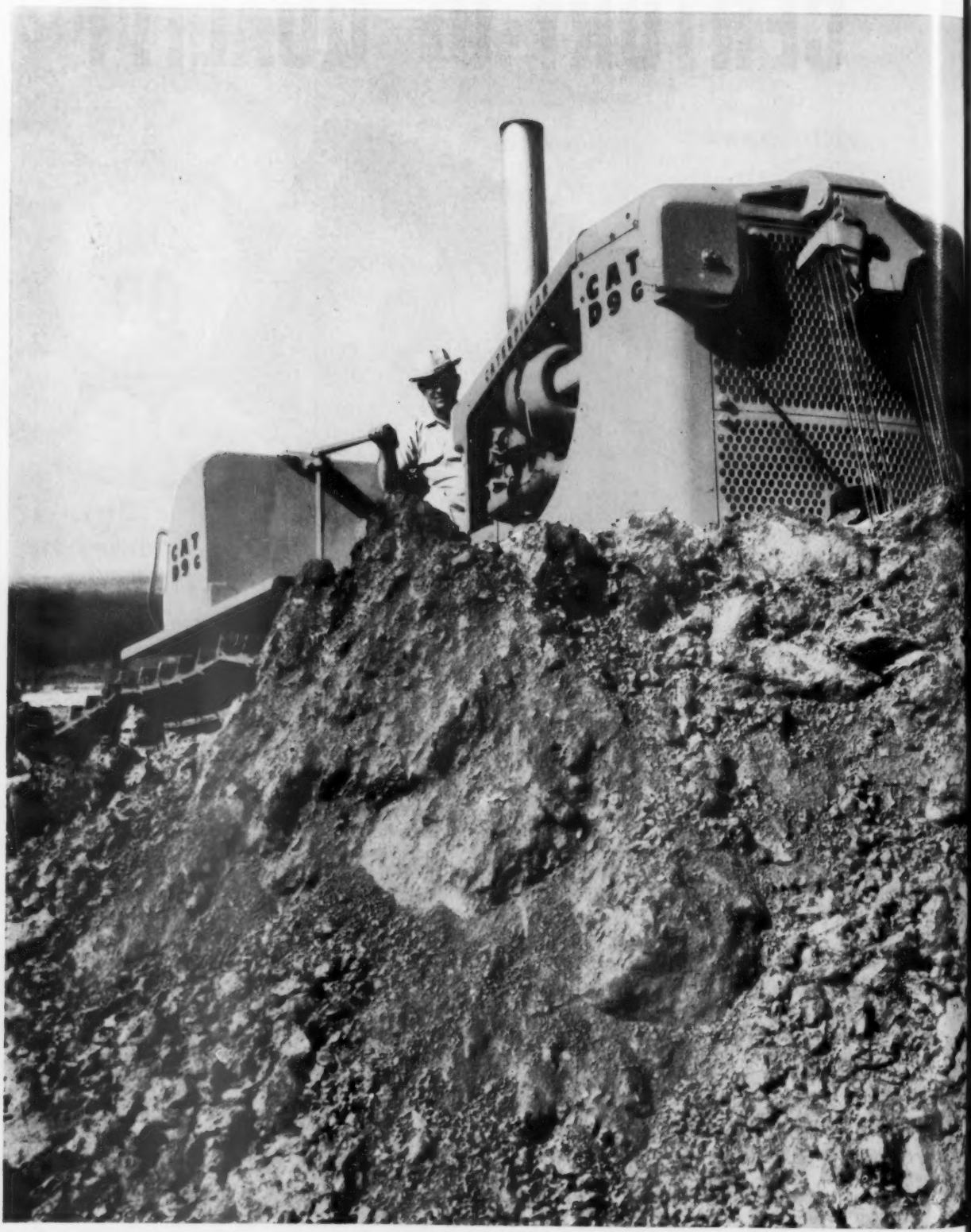
* Industrial Distributors provide the finest goods and services in the least possible time. Our products are sold exclusively through them.

NICHOLSON FILE COMPANY, Providence 1, Rhode Island • Files • Rotary Burs • Hacksaw and Band Saw Blades
Hole Saws • Ground Flat Stock • Industrial Hammers

NICHOLSON U.S.A. NICHOLSON

For More Facts Write No. 278 on Information Card—Last Page

# What makes D9s so



# strong? And last so long?



All Cat-built tractors *must* be able to take it—they lead a hard life. Especially the big, new D9G whose ferocious snarl is the result of a whopping 385 flywheel horsepower. That's an increase of 100 hp since the first D9 was introduced 5 years ago. It means that from stack to track, steel components have to be far stronger, more rugged. Solution: Caterpillar uses USS Alloy Bars for critical power train parts such as the final drive pinion. Says Caterpillar, "USS Alloy Bars meet our rigid specifications for strength, hardenability, durability, and precise tolerances."

USS Alloy Bars are not only exceptionally strong and durable, but they have excellent fabricating characteristics as well. Distortion during heat treatment and machining is an absolute minimum. USS Alloy Bars retain dimensional accuracy during quenching. And USS Alloy Bars are available in the widest range of sizes, shapes and grades in the industry. Order what you need from your nearest U. S. Steel sales office or Steel Service Center. USS is a registered trademark of United States Steel.

United States Steel Corporation • Columbia-Geneva Steel Division • Tennessee Coal and Iron Division • United States Steel Supply Division • United States Steel Export Company

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.*

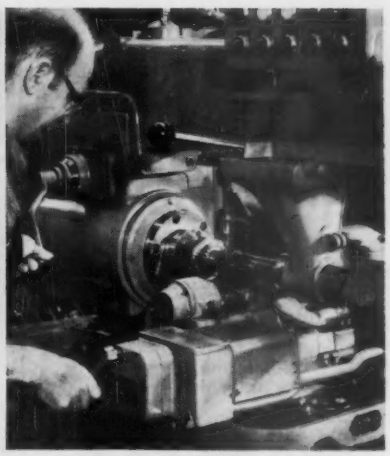
USS **United States Steel**



High-speed saw cuts USS Alloy Bars into proper lengths for finished parts.



Transmission shafts are rough ground to general tolerances before finish grinding.



Hob operation cuts teeth into shaft—precise tolerances are extremely important here.

This mark tells you a product is made of modern, dependable Steel.



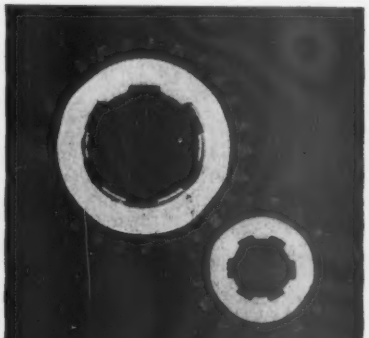

THERE'S A RIGHT WAY TO HANDLE $H_2O_2$, TOO!

fmc FOOD MACHINERY AND CHEMICAL CORPORATION ®
Becco Chemical Division

Why not let Becco suggest the best handling system for your particular needs? With its four-fold engineering service, Becco—most experienced producer of $H_2O_2$—can serve you well. Including survey, proposal, installation and inspection.

161 East 42nd Street, New York City

For More Facts Write No. 281 on Information Card—Last Page



SOURCES OF SUPPLY

Suppliers and sub-contractors in the Northern Plains can be pinpointed quickly by the Facilities Register, a unique electronic index of production facilities. Whether yours is a problem of finding new suppliers, contracting for idle machine time, shortening lines of supply, or obtaining better quality and service:

ASK THE MAN FROM THE NORTHERN PLAINS



NORTHERN NATURAL GAS COMPANY
SERVING THE NORTHERN PLAINS ☐ GENERAL OFFICES: OMAHA, NEBRASKA

Write No. 279 on Information Card—Last Page

WHY do so many P.A.'s PAY MORE for PROTECTOSEAL SAFETY CANS?



because they have found that Protectoseal COSTS them less!

As a P.A. you know that *true cost* is not the initial price you pay. Time and experience have proved that price is what you pay, *value what* you get!
Hidden values are built into Protectoseal Products. Investigate—compare point by point and see for yourself why Protectoseal Safety Products are the quality standard of the industry.

*Write for 76 page Catalog of Protectoseal Equipment for the safe storage, handling, and use of flammables.* 17

THE PROTECTOSEAL COMPANY
1908 S. Western Avenue • Chicago 8, Illinois

IN CANADA: SAFETY SUPPLY COMPANY, TORONTO

Write No. 282 on Information Card—Last Page

## News

### Former POA Director Joins Educational Group

John R. Blinch, former director and secretary of the Purchasing Officers' Association of Great Britain, has been appointed managing director of Industrial Education International, Ltd., the European subsidiary of the Industrial Education Institute, Boston, Mass. Blinch will direct operations from IEI's headquarters in London.

In addition to his previous post with the Purchasing Officers' Association of Great Britain, Blinch



John Blinch, former director and secretary of the Purchasing Officers' Association of Great Britain, is now serving as managing director of Industrial Education International, Ltd.

was also executive secretary of the European Federation of Purchasing, comprised of the national purchasing organizations of Belgium, France, Germany, Netherlands, Norway and Sweden, and Great Britain.

Industrial Education International was formed in 1959 to provide American and European industrial companies with a means of exchanging information. The organization has sponsored seminars in England, Scotland, France, Sweden, and the Netherlands. Under Blinch's direction this program will be greatly expanded.

Blinch also will direct seminars sponsored by Materials Management Institute, an IEI affiliate. This organization disseminates information on all phases of materials management from supplier to point-of-sale.

Whatever you make . . . there's a

# WALDES TRUARC® RETAINING RING

designed to improve your product . . . lower assembly costs

| function | | for axial assembly | | | | | for taking up end-play | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | axial assembly | | | | radial assembly | |
| nomenclature | | basic | | heavy duty | inverted | | bowed | | beveled | | bowed e-ring | prong-lock® |
| | |  |  |  |  |  |  |  |  |  |  |  |
| series no. | | 5000 N5000 | 5100 | 5160 | 5008 | 5108 | N5001 | 5101 | 5002 N5002 | 5102 | 5131 | 5139 |
| application | | Internal for Housings, Bores | External for Shafts | External for Shafts | Internal for Housings, Bores | External for Shafts | Internal for Housings, Bores | External for Shafts | Internal for Housings, Bores | External for Shafts | External for Shafts | External for Shafts |
| size range | in. | .250 – 10.0 | .125 – 10.0 | .394 – 2.0 | .750 – 4.0 | .500 – 4.0 | .250 – 1.500 | .188 – 1.500 | 1.0 – 10.0 | 1.0 – 10.0 | .110 – 1.375 | .092 – .438 |
| | mm. | 6.4 – 254.0 | 3.2 – 254.0 | 10.0 – 50.8 | 19.0 – 101.6 | 12.7 – 101.6 | 6.4 – 38.1 | 4.8 – 38.1 | 25.4 – 254.0 | 25.4 – 254.0 | 2.8 – 34.9 | • |

| function | | for radial assembly | | | | self-locking types | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| nomenclature | | crescent® | e-ring | interlocking | reinforced e-ring | circular self-locking | | | grip-ring | triangular self-locking | triangular nut |
| | |  |  |  |  |  |  |  |  |  |  |
| series no. | | 5103 | 5133 | 5107 | 5144 | 5115 | 5105 | 5005 | 5555 | 5305 | 5300 |
| application | | External for Shafts | External for Shafts | External for Shafts | External for Shafts | External for Shafts | External for Shafts | Internal for Housings, Bores | External for Shafts | External for Shafts | With Threaded Screw |
| size range | in. | .125 – 2.0 | .040 – 1.375 | .469 – 3.375 | .094 – .562 | .094 – 1.0 | .094 – 1.0 | .312 – 2.0 | .079 – .750 | .062 – .438 | • |
| | mm. | 3.2 – 50.8 | 1.0 – 34.9 | 11.9 – 85.7 | 2.4 – 14.3 | • | • | • | 2.0 – 19.0 | • | • |

Truarc retaining rings are precision-engineered fasteners which simplify design, speed production and reduce material, machining and assembly costs. They may be used to retain components on shafts and in bores and housings .040" to 10" dia. – and rings as large as 40" dia. have been developed for special applications! Truarc rings are installed in easy-to-cut grooves and self-locking types are available which do not require any preparatory machining. Altogether, there are 50 functionally different types . . . some with as many as 98 sizes . . . in 6 metals and 13 finishes.

**More than a fastener!** Truarc rings function as mechanical components by replacing machined shoulders, set collars, rivets, threaded fasteners and other bulkier and more expensive fastening devices. They eliminate drilling, tapping, threading and other costly machining operations. Speed of assembly and disassembly further reduces manufacturing costs and simplifies field service.

**Assembly tools for every requirement:** Truarc offers you the most complete line of pliers, applicators, dispensers and portable magazine-fed tools for high-speed ring installation . . . even fully mechanized and automated equipment for mass-production assembly operations.

**Engineering Service:** We'll be happy to help you solve *your* fastening problems. Send us your blueprints or contact your local Truarc representative or distributor. They're listed in the Classified Telephone Directory under "Retaining Rings" or "Rings, Retaining."

WALDES KOHINOOR, INC.

47-16 Austel Place • Long Island City 1, N.Y.

61-6



WALDES TRUARC RETAINING RINGS

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# PLAY IT SAFE...

## SPECIFY DEPENDABLE DUPONT FAIRPRENE®

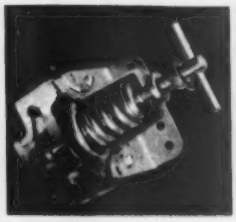
Ever call for gaskets, diaphragms, condenser seals ,valves or similar parts? You can be sure of peak performance and maximum service if they're fabricated with Du Pont "Fairprene"*. "Fairprene" resists acids, gas solvents, temperature extremes and other hazards of operation.

Du Pont research and quality control assure you that parts made with this basic material are long-lasting . . . economical . . . save replacement costs . . . reduce down-time. So play it safe . . . specify Du Pont "Fairprene" and know you've made the right choice.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

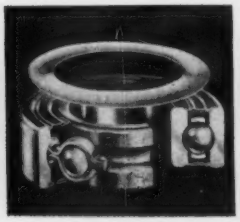
*"Fairprene" is Du Pont's reg. trademark for its coated fabrics, sheet stocks and cements.



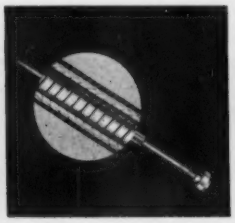
air-regulator diaphragm



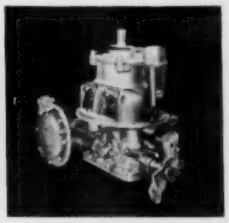
fuel-transfer control



bearing seal



molded jacket



carburetor diaphragm

For More Facts Write No. 283 on Information Card—Last Page



# stainless

because no other metal will do the job as well—

stronger
handsome
ever-bright
non-corrodible
easy to clean

thanks to

# Superior

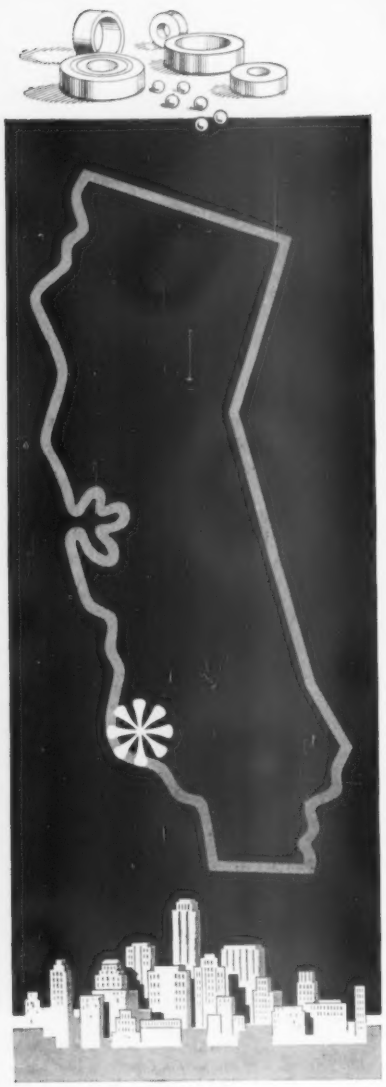
STAINLESS STRIP STEEL

Your fire extinguisher with the stainless body features a very good reason for being ever-ready for service: stainless steel is the *changeless* metal — good as new, year after year, without costly maintenance. • Made of SUPERIOR Stainless Strip Steel, the extinguisher body is easy to draw and weld—always uniform in behavior and performance because of uniformly Superior quality, coil after coil. Let us quote on your stainless requirements.

**SUPERIOR STEEL DIVISION**

OF
COPPERWELD STEEL COMPANY
CARNEGIE, PENNSYLVANIA

For Export: Copperweld Steel International Company, New York



**The big west coast source** for instrument bearings, today, is a highly specialized producer named REED. Each year, REED produces hundreds of thousands of miniature and instrument bearings—in bore sizes between .0469" and .2500". REED also makes these bearings available nationally—through local stocks at REED sales offices and by air directly from Los Angeles. REED specialists are strategically located in major cities to help you make these tiny bearings do big, important jobs—another reason why REED should be on your list of approved sources for instrument bearings. 6109

REED

REED INSTRUMENT BEARING COMPANY
Los Angeles, California
Div. of [illegible] Industries, Inc.

For More Facts Write No. 285
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# Industry Developments

## New Research Center Opened by Koppers

An investment of more than $8 million went into the new research and development center constructed by Koppers Company, Inc. at Monroeville, Penna.

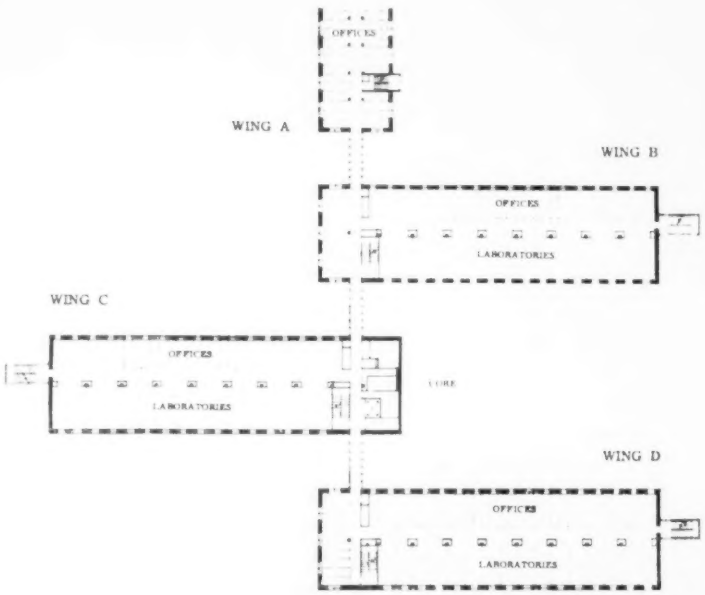
According to Dr. Paul W. Bachman, vice president and director of research, the center will eventually be able to house over 1500 scientists and their assistants. The present staff is around 300.

The center consists of a 5-story administration building, three 3-story interconnecting laboratory wings and several outlying auxiliary buildings. Glass enclosed stairways are located at the end of each wing which can be easily removed when additional wings are required. These stairways can be reaffixed to the end of the new wing.

The buildings are designed on a modular concept. A module is the smallest repetitive unit of space completely and independently equipped with required services such as lighting, power, air conditioning, etc. Partitions can be added or removed with minimum interruptions.

The office module is a unit of floor space between the center corridor and an exterior wall. At the Koppers building it is 5 ft along the corridor and 15 ft deep. The minimum modular office is 10 ft wide x 15 ft deep, and larger offices—15 ft, 20 ft, or more wide

(*Please turn to page* 216)




The buildings at the research center were designed on a modular concept with all offices on one side of the corridor and laboratories on the other. This relationship provides privacy for the scientist and gives him "thinking room."




***1. Efficient.*** An important addition to Simonds line of quality cutting tools, Simonds new Hole Saws saw holes cleanly and efficiently in machinable materials up to 1⅛" thick. Ideal for portable tools, drill presses, lathes, boring mills, and milling machines . . . Simonds floating pin-drive arbor assures positive non-slip cutting.

***2. Shatterproof.*** Made with a special wear-resistant high speed steel cutting edge, these saws *stay sharp* for exceptionally long periods. Rugged. Tough. Simonds cutting edge is permanently bonded to a tough alloy steel body for maximum strength and resiliency . . . makes these the sturdiest hole saws you can buy.

***3. Easy-Out.*** Simonds knock-out slots allow easy removal of cores. "Follow through" design of cap permits sawing deep holes in stacked or layers of material where cores can be removed. Now available from your nearby Simonds Distributor for hole sizes from 9/16" to 6" diameter. 6 mandrel sizes offered for light to heavy cutting. Call and try some today. Discover how "Simonds means savings whatever you cut."

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASSACHUSETTS

Buy through your local Simonds Distributor for TRIPLE S SERVICE — Local Stocks — Local Speed — Local Skill

Factory Branches in Union, N. J., Chicago, Shreveport, La., Los Angeles, San Francisco, Portland, Ore. • Canadian Factory in Granby, Que. • Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.; Heller Tool Co., Newcomerstown, Ohio; Simonds Abrasive Co., Philadelphia, Pa. and Arvida, Que., Can.

For More Facts Write No. 286 on Information Card—Last Page

# here's plating automation a



# n at its best!





## Udylite Cyclemaster ties into plant conveyor system, features automatic rack loading and unloading mechanism

A fully-automatic Udylite Cyclemaster was selected by Koelling Metal Parts, St. Louis, Missouri, to meet high-production, high-quality plating requirements on looseleaf binder and catalog components. This 15-station machine with automatic load and unload mechanism, shown above, is tied directly into a "stop and go" overhead plant conveyor system for maximum material flow efficiency. ■ This Udylite Cyclemaster provides peak production flexibility for Koelling. It operates at any rate from 40 to 120 racks per hour with plating thickness easily varied from .0001″ to .001″. Parts of any size can be plated within the limits of the 16″ x 8″ x 36″ racks. ■ The Cyclemaster maintains exacting quality control standards, boosts plating volume and offers an important reduction in floor space requirements. To find out how you can obtain the ultimate in automatic plating today at a surprisingly low cost, call your Udylite Representative and have him tell you the complete Cyclemaster story. Then, let Udylite Engineers recommend the specific machine and conveyor system to best meet your requirements.

Udylite

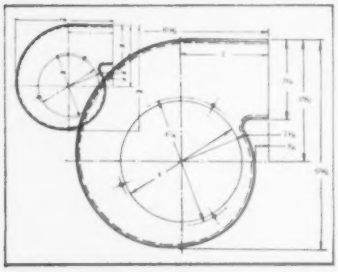
THE UDYLITE CORPORATION
DETROIT 11, MICHIGAN

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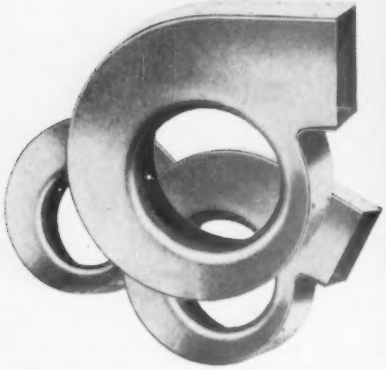
# YOU CAN HAVE

**PRE-ENGINEERED**

# BLOWER HOUSING ASSEMBLIES



BUILT-IN DE-STA-CO QUALITY



## QUICK DELIVERY

Long experience and tooling flexibility provide quick delivery of pre-engineered Blower Housing assemblies. Broad range of sizes and styles—in any width—available from stock dies in a matter of days . . . and no tooling costs! For special installations ask our engineers how adaptations can be made at low unit cost.

***WRITE FOR FULL DETAILS AND SPECIAL BROCHURE***

**DETROIT STAMPING COMPANY**

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TOGGLE CLAMPS · STAMPINGS

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SHIMS AND SPACERS · BLOWER HOUSINGS

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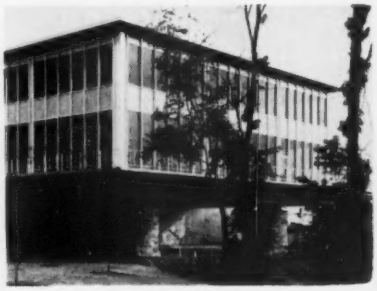

## Industry Developments

(*Continued from page* 212)

—are formed from these basic 5 ft modular units.

The minimum laboratory module is 10 ft along the corridor and 24 ft deep. Two or more modules may be combined to make larger laboratories where desired. Included in the modular pattern are standard positions for fume hoods, benches, exhaust ducts, electric cabinets, and service piping.

Putting all offices on one side of the corridor and all laboratories on the other has a number of advantages. For example, installation and maintenance costs



This library is a prominent feature of the new Koppers Research Center. It has 30,000 bound volumes and a periodical room with more than 350 scientific magazines from all over the world.

were sharply reduced by locating drainage facilities and service lines for steam, gas, and compressed air on one side of the building.

The relationship of the laboratories to the offices also provides privacy for the scientist. It gives him "thinking room" without interruption from others in the same area.

Just off the main lobby in the administration building is a conference room which seats a maximum audience of 230. Primary consideration was given to the acoustics. Unusual techniques were used to provide the best sound absorption and sound reflecting qualities.

At the dedication ceremonies opening the new research center, Fred C. Foy, chairman, said that it "provides suitable facilities for Koppers scientists whose role in our corporate growth is critically important."




**TAKE IT FROM THE DRILL SARGE**

**NEW YORK TWIST DRILL** *manufactures*

**TAPER SHANK DRILLS**



*extra tough and true too!*



All regular series to 3½" O.D. available for immediate delivery —Specials made up to 1⅛" O.D.

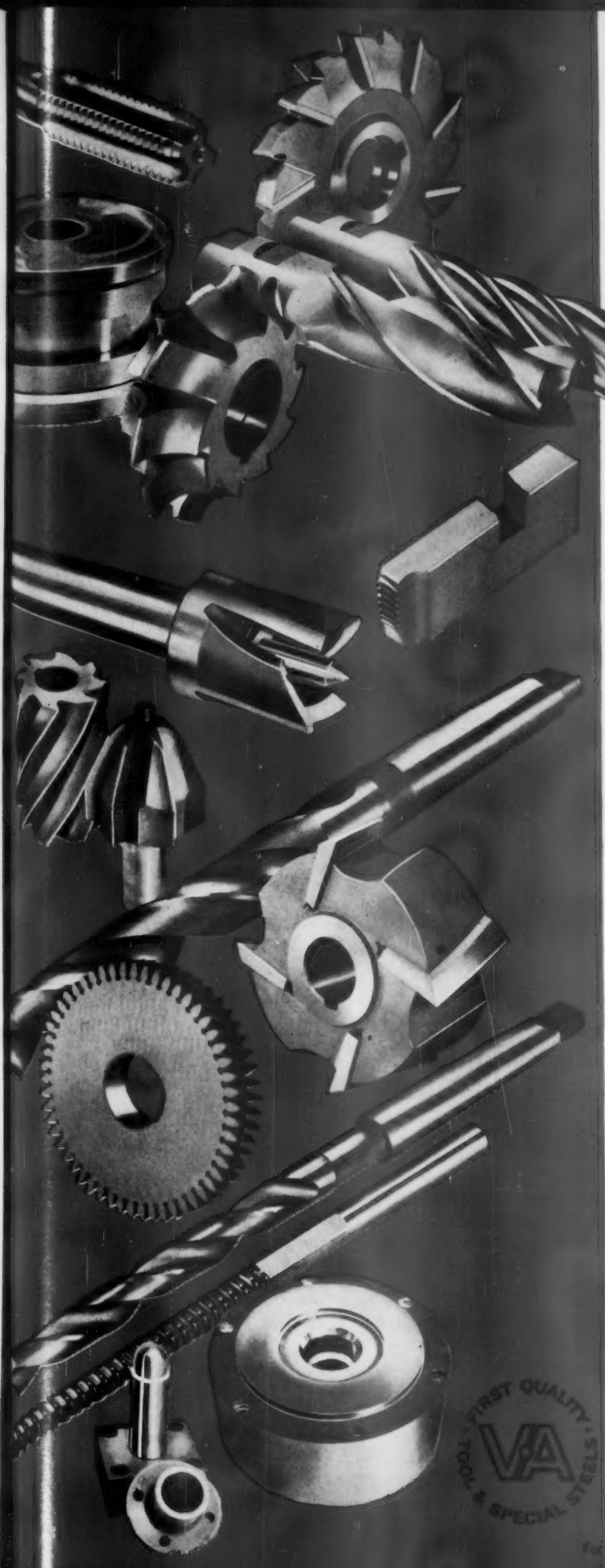
New York Taper Shank Drills save you 25% on your twist drill bill — as do all the drills in our extensive line. If you wish further information, one of our sales engineers will be glad to call on you.

**NEW YORK TWIST DRILL COMPANY, INC.**

Manufacturers of a complete range of standard and special drills in all popular sizes, lengths and types

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30 North Clinton Street, Chicago 6, Ill.
3537 E. Olympic Blvd., Los Angeles 23




## WITH VANADIUM-ALLOYS

# high speed steels

## the *difference* is in your favor!

Among High Speed Steels of identical analysis made by different manufacturers, you'll find a *difference in performance* at the working point. And you'll find the greatest difference when you compare a Vanadium-Alloys brand against the field!

The reasons are fundamental. Our melting techniques are based on many years of the only *specialized* tool steel production experience in the industry. Our methods of forging, rolling and heat treating are exclusively our own—developed to insure the bonus of *extra* performance in every single grade of steel we make.

As tool steel specialists for over fifty years we produce many grades and brands, to but one standard of excellence: FIRST QUALITY, unvarying. We suggest you prove for yourself that *the difference in performance is always in your favor* with Vanadium-Alloys High Speed Steels. Let us consult on your applications.

### Nationally popular grades

| | |
|---|---|
| VASCO SUPREME | VASCO M-7 |
| NEATRO | VAN-LOM |
| RED CUT COBALT | VASCO M-2 |
| VAN CUT | RED CUT SUPERIOR |
| E. V. M. | 8-N-2 |

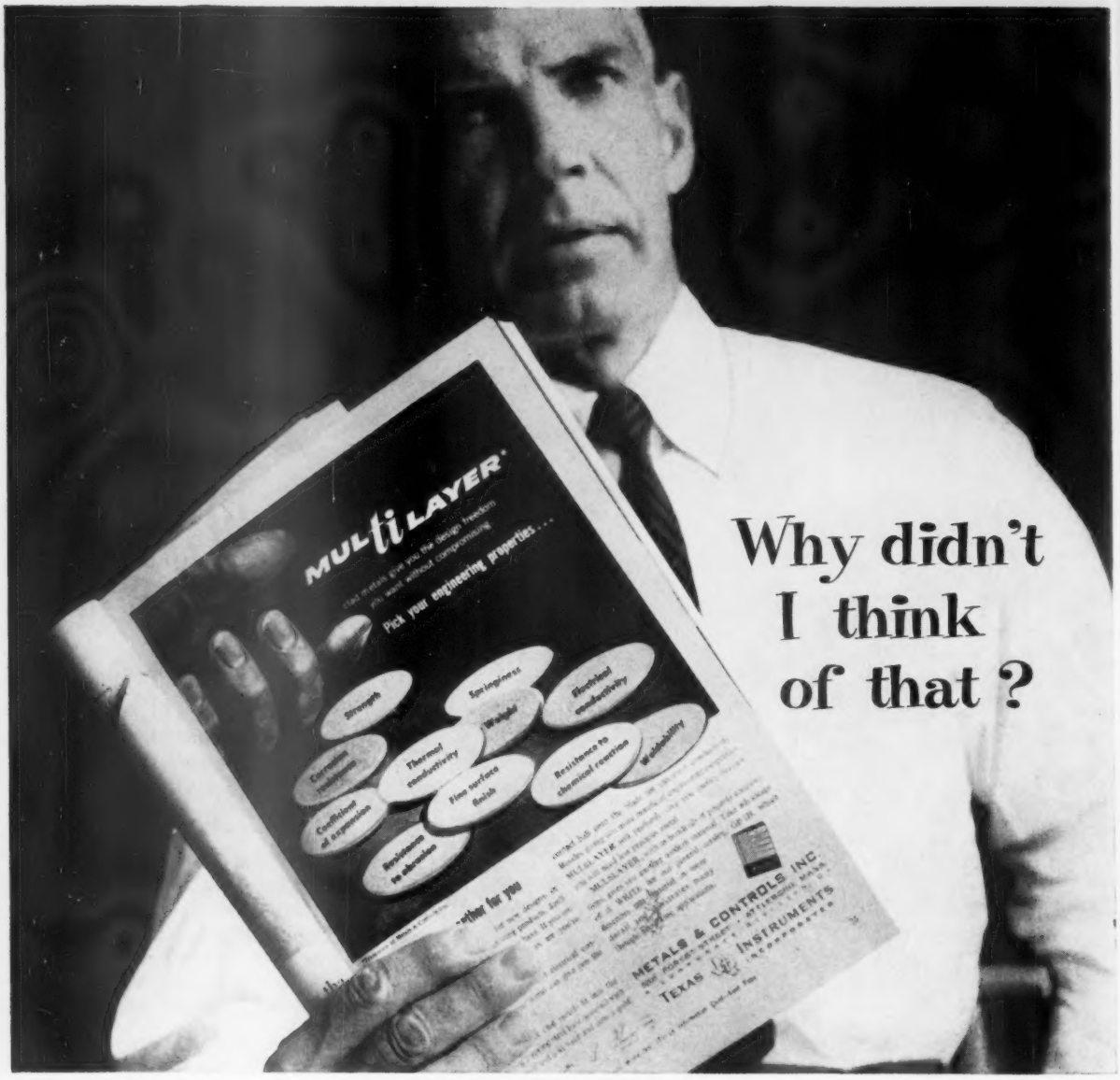
**VANADIUM-ALLOYS STEEL COMPANY**

**GENERAL OFFICES: LATROBE, PA.**

**DIVISIONS:** Anchor Drawn Steel Co. • Colonial Steel Co. • Metal Forming Corporation • Pittsburgh Tool Steel Wire Co. • Vanadium-Alloys Steel Co.

**SUBSIDIARIES:** Vanadium-Alloys Steel Canada Limited • Vanadium-Alloys Steel Societa Italiana Per Azioni • EUROPEAN ASSOCIATES: Societe Commentryenne Des Aciers Fins Vanadium-Alloys (France) • Nazionale Cogne Societa Italiana (Italy)

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## MULTILAYER* Clad Metals Combine The Exact Operating Properties I Must Have.

This design engineer has just realized a fact we wish more people would discover. MULtiLAYER CLAD METALS PROVIDE MORE COMBINATIONS OF OPERATING CHARACTERISTICS THAN ANY SINGLE MATERIAL OR ALLOY.

If you need a spring with high conductivity, superior elastic properties, high temperature strength and easy weldability, no single spring alloy can satisfy all the requirements. MULtiLAYER clad spring metals can!

If a tube for chemical processing must have a clean, corrosion resistant, stainless steel surface, high thermo conductivity, plus high forming ductility for flaring and bending; no single material can satisfy all these requirements. MULtiLAYER clad tubing can!

Therefore, why compromise? Why be limited to only partial reliability in your components when, with MULtiLAYER clad metals, you can get maximum satisfaction?

You specify the engineering properties you need . . . we'll put the metals together for you — and even make the components in many cases. Find out about this modern design material. Call us or write for our illustrated brochure GP-1.



*For materials and components come to Metals & Controls*

*Trademark of Metals & Controls Inc.

TUBING WIRE STRIP STAMPINGS BALL WELDED ASSEMBLIES CONTACTS THERMOSTATIC METALS YOU NAME IT!

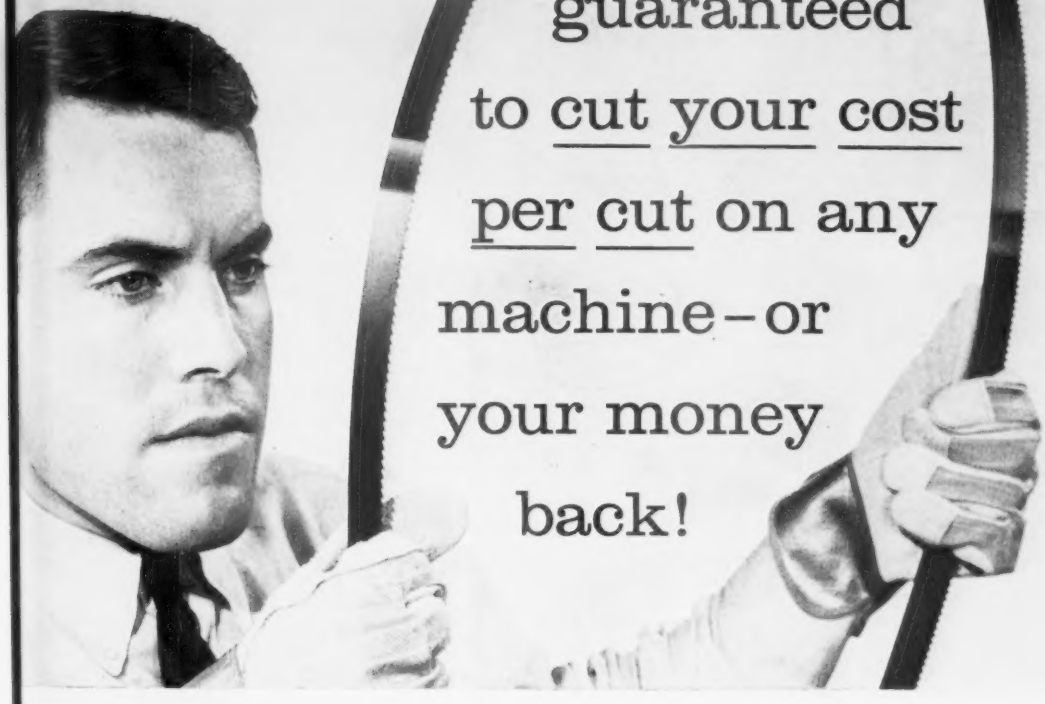
METALS & CONTROLS INC.
8310 FOREST ST. • ATTLEBORO, MASS.
A CORPORATE DIVISION OF
TEXAS INSTRUMENTS
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a DoALL PRODUCTIVITY-PLUS product

# new Dart® Blade guaranteed to cut your cost per cut on any machine – or your money back!



## Try it for results like these!

**NOW AVAILABLE in widths, pitches, and types for every job.**

**Dart Precision®**

3/16, 1/4, 3/8, 1/2, 5/8, 3/4, and 1-in. blade in 6, 8, 10, 12, 14, 18, 24 and 32-pitch, depending on width; raker or wave set.

**Dart Buttress®**

3/16, 1/4, 3/8, 1/2, 3/4, and 1-in. blades in 3, 4, and 6-pitch, depending on width.

**Dart Claw Tooth®**

1/4, 3/8, 1/2, 3/4, and 1-in. blade in 3, 4, and 6-pitch, depending on width.

**Special introductory offer:** a free lubricator for your horizontal cutoff saws with an order of 12 Dart blades and one gal. #150 cutting oil.

**". . . cannot afford to be without Dart blade.** Initial increased investment of 10% is returned fourfold"—Zuelzke Tool & Engineering, Milwaukee.

**"200% increase in blade life;** rate of cutting increased 10%; accuracy greatly improved"—The Eldred Company, Columbus, Ohio.

**"Dart blade on our horizontal saw** has been running over a month and still like new; never before able to use any carbon blade for two weeks . . . getting straighter cuts; longer life; no messy coolant splash with lubricator you installed"—Embassy Metal Corporation, New York City.

**"Your claim of 50 to 75%** greater blade life is conservative. Cutting 2½" pipe, Dart outlasts two regular blades"—Minneapolis Ornamental Iron Company, Minneapolis.

**"Blade life one and a half and two times** previous. Straighter cuts eliminate scrap loss and secondary operation"—Vickery Engineering Company, Indianapolis.

Dart cuts cost per cut on any vertical or horizontal machine. Call your local DoALL store today for a demonstration.

**THE DoALL COMPANY, Des Plaines, Illinois**
Serving you locally through your DoALL Sales-Service Store

**DoALL . . . the Productivity People**

SB-89

*Reg. T.M.—The DoALL Company

CALL YOUR DoALL SALES-SERVICE STORE



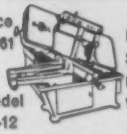
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Price $10,336
Model 2613-3
Contour-matic*
23 types
BAND MACHINES



Price $1475
Model DH-612 6" x 12"
12 types
SURFACE GRINDERS



Price $2761
Model C-12
6 types
POWER SAWS

CUTTING TOOLS




18 types
All sizes

MEASURING INSTRUMENT

SHOP BLOCKS* 84 pc




Price $265
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Find Your DoALL STORE In The "Yellow Pages"



have you met
GRIPCO GUS ?...

If not, there are three reasons why meeting him could prove particularly profitable: (1) he's an expert fastener engineer with a penchant for solving problems; (2) he has 56 years' worth of fastener tricks up his sleeve; (3) his services are free and readily available right in your own backyard.

There are more than two score of "GRIPCO* GUSes" serving friends and customers of the Grip Nut Company coast to coast. These are not just "nut hawkers." Each and every one is a trained technician first and a salesman second. As our only representatives, you can be sure they are hand-picked, heavily-trained, and fully equipped to serve your fastener needs with deference and dispatch.

You'll find your GRIPCO GUS listed (in the yellow pages) under Bolts & Nuts as the GRIPCO representative.

**GUS' GANG:** Toplock and Centerlock Nuts, Open and Closed End Cap Nuts, Clinch Nuts, Pilot-Projection Weld Nuts, Countersunk Weld Nuts, Tab Weld Nuts, Flange Nuts, Hex-Finished and Heavy Nuts, Washer Nuts, Self Piercing Clinch Nuts. Specials of every description, 20-page Catalog on request (see GUS).

*GRIPCO is a registered trademark of Grip Nut Co.

GRIP NUT COMPANY
*Subsidiary of Heli-Coil Corporation, Danbury, Conn.*
1010 Maple Ave. • South Whitley, Ind. • Phone: South Whitley 723-5111

3984

For More Facts Write No. 292 on Information Card—Last Page

## Industry Developments

Completion of **Timesavers Sanders, Inc.'s** new plant addition has been announced. Site of the plant is **5270 Hanson Court, Minneapolis 22, Minn.** The new addition is a single story 90′ x 100′ concrete-block building that will serve as assembly, research and demonstration facilities for the company, manufacturers of wide abrasive belt sanding machinery.

The present plant facilities will be utilized for expanded machine shop operations, parts warehouse and material storage.

A completely automated plant for the manufacture of cast acrylic sheets has been opened by the **Cast Optics Corporation** of **Hackensack, N. J.** The plant is believed to be the first facility specially designed and equipped for automation in the cast acrylic sheeting field. Present estimates are that it will produce 7 million pounds of sheeting yearly.

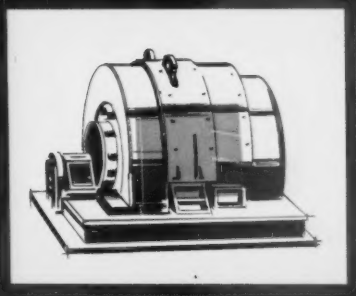
In anticipation of growth in its defense and electronics business, **Sangamo Electric Company, Springfield, Illinois,** has announced a program which includes realignment and relocation of production facilities, expansion of an existing plant in South Carolina, and the construction of a new plant in that State. The production of capacitors now manufactured at **Marion, Illinois** will be transferred to a modern plant in **Pickens, South Carolina,** and the Marion plant will be closed.

The **Pickens, South Carolina** plant will be expanded by a 65,000 square foot addition to accommodate the production transfer, and a 150,000 square foot plant will be constructed in **Walhalla, South Carolina.**

By transferring Marion capacitor production to **Pickens** and the singlephase wetthour meters from the main plant in **Springfield, Illinois** to the new plant in **Walhalla, South Carolina,** the company hopes to provide space at the **Springfield** plant for its anticipated expansion of complex electronic gear production.

# STEEL IS ROLLED AT THE HOMESTEAD WORKS WITH AN ASSIST FROM NATIONAL BRUSHES

TRADE MARK



Rolling mills at the Homestead Works of United States Steel Corporation exert tremendous pressures to squeeze steel into desired thicknesses. The mills are designed to handle terrific mechanical strains ...the motor-generator sets to take the swinging peak loads imposed.

"National" Brushes—wherever they are used on the m. g. sets that power the mammoth mills—provide good commutation and life despite the difficult loading conditions. They contribute to dependable service with minimum commutator maintenance.

To help improve electrical operations, we offer a positive carbon brush service program. Just call your "National" Brush Man or write National Carbon Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N.Y. In Canada: Union Carbide Canada Limited, Toronto.



*Contact your "National" Brush Man*

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# BODINE'S SMALL MOTORS OFFER DEPENDABLE SERVICE WITH AN ASSIST FROM NATIONAL BRUSHES

TRADE-MARK

Here, at the Bodine Electric Company Plant, fractional horsepower motors are manufactured for a wide variety of products. Considering the small sizes of the motors used, these products do a tremendous job in making many everyday tasks easier and more enjoyable for the user.

"National" Fractional Horsepower Brushes—tiny but vital components in these motors—offer proved dependability so necessary in this small equipment.

National Carbon Company maintains a complete testing laboratory specifically designed for the investigation of fractional horsepower brush problems. For information, contact your "National" Brush Man or write National Carbon Company, Division of Union Carbide Corporation, 270 Park Ave., N. Y. 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.



*Contact your "National" Brush Man*

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# FRASSE
## for tubing

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- Welded Mechanical Tubing — Round, Square & Rectangular
- Pressure Pipe & Tubing
- Seamless Hydraulic Tubing
- Welded Hydraulic Tubing
- Centrifugally Spun Tubing
- Hollow Structural Tubing — Square & Rectangular
- Stainless Seamless Tubing
- Stainless Welded Tubing
- Stainless Seamless Pipe
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New Grades — New Shapes — New Sizes . . . *all* are included in the new extensive expansion made in the size and scope of Frasse tubing stocks. You can be more selective than ever — with the unusually complete tubing inventories *now* available. For, while only the major additions are highlighted above . . . *practically all* Frasse tubing grades have been recently supplemented.

Whether it's for a new application — or a standard requirement . . . you'll find it more convenient to order your tubing from Frasse. With Frasse as your tubing source — you have quick access to a variety of grades, shapes and sizes that will meet every normal tubing requirement . . . *and* you avoid needless "shopping". Then too, quality need never concern you . . . for every tubular item carried meets rigid standards set by Frasse tubing specialists.

**Broad selection — top quality — quick delivery — dependable service** . . . these are the plus-values you get by ordering your tubing from Frasse. For a quotation on your requirements — or a fast delivery . . . call us.

**Peter A. Frasse & Co., Inc.**

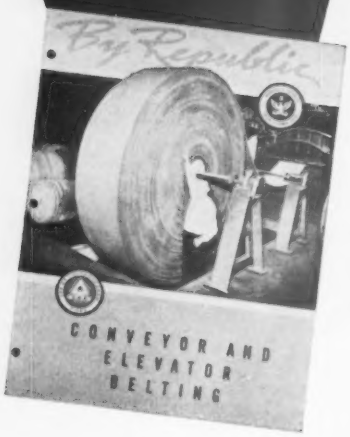
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Answers your questions on

CONVEYOR and ELEVATOR BELTING




for the asking . . .

You can be a real expert on conveyor and elevator belting with this 28-page booklet. Includes many reference tables and other data to help you choose the proper belting for each service. Complete information on each of the many belts made by Republic Rubber.

REPUBLIC RUBBER DIVISION
LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN 1, OHIO

REPUBLIC RUBBER DIVISION
YOUNGSTOWN 1, OHIO

*Please send me your Conveyor and Elevator Belting Catalog.*

Name
Title
Company
Address
City Zone State

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## Industry Developments

**American Brazing Alloys** is now completing a 12,000 square foot plant in **Pelham, New York.** The firm, which produces low-fuming bronze, nickel silver, phosphor copper silver alloys, silver solders, and aluminum welding wire, will use the new plant for flux coating, wire drawing, spooling, straightening, and cutting.

A new and ultra-modern research center is being planned by **The Kendall Company, Chicago Division,** manufacturer of Polyken industrial tapes and protective coatings.

The new center will be located in **Barrington, Ill.** on fourteen acres of wooded land. The laboratories will occupy approximately 40,000 square feet and cost is estimated at $1,500,000. The expected completion date is the fall of 1962.

Approximately 65 research personnel will be on the laboratory staff. Because of the broad range of products a wide diversity of scientific disciplines will be required. Personnel will include chemists, engineers, physicists, bacteriologists, and other scientific technicians. Research emphasis will be on industrial adhesives and plastics.

A site in the Lexington Park section of historic **Lexington, Mass.,** has been purchased by **Kennecott Copper Corporation** as a location for its new Basic Research Laboratory. The site is located near the intersection of Routes 2 and 128, fifteen minutes from downtown Boston.

Kennecott's research program will emphasize solid state physics of metals. The company already has extensive applied research programs for improving the recovery of copper and other metals from ores, improving the quality of fabricated products, and developing new fabricated products. These programs are underway in the Kennecott Research Center at Salt Lake City, Utah, and at Kennecott's fabricating subsidiaries, Chase Brass and Copper Company, Waterbury, Conn., and The Okonite Company, Passaic, N. J.

Interim operations will be carried out in temporary quarters which will be set up on the Lexington site at 114 Spring Stree , and continue during the construction phase of the laboratory building. Recruiting, organizatio , study programs and determinatio of short- and long-term objectives will occupy the nucleus f the ultimate staff during the construction program which wi l take about a year to complete.

**Miller - Stephenson Chemical Company, Inc.,** has moved its headquarters to larger facilities at **16 Sugar Hollow Road, Danbury, Conn.**

Designed to provide the company with increased office production and warehouse space, the move is expected to result in faster, more efficient service to customers in the electronics, aircraft, marine, plastics and other industries. Products produced and/or distributed by Miller-Stephenson include epoxy and polyester resins, hardeners and related chemicals, finishes, fiberglass cloth, roving and mat, mold releases, and industrial chemicals.

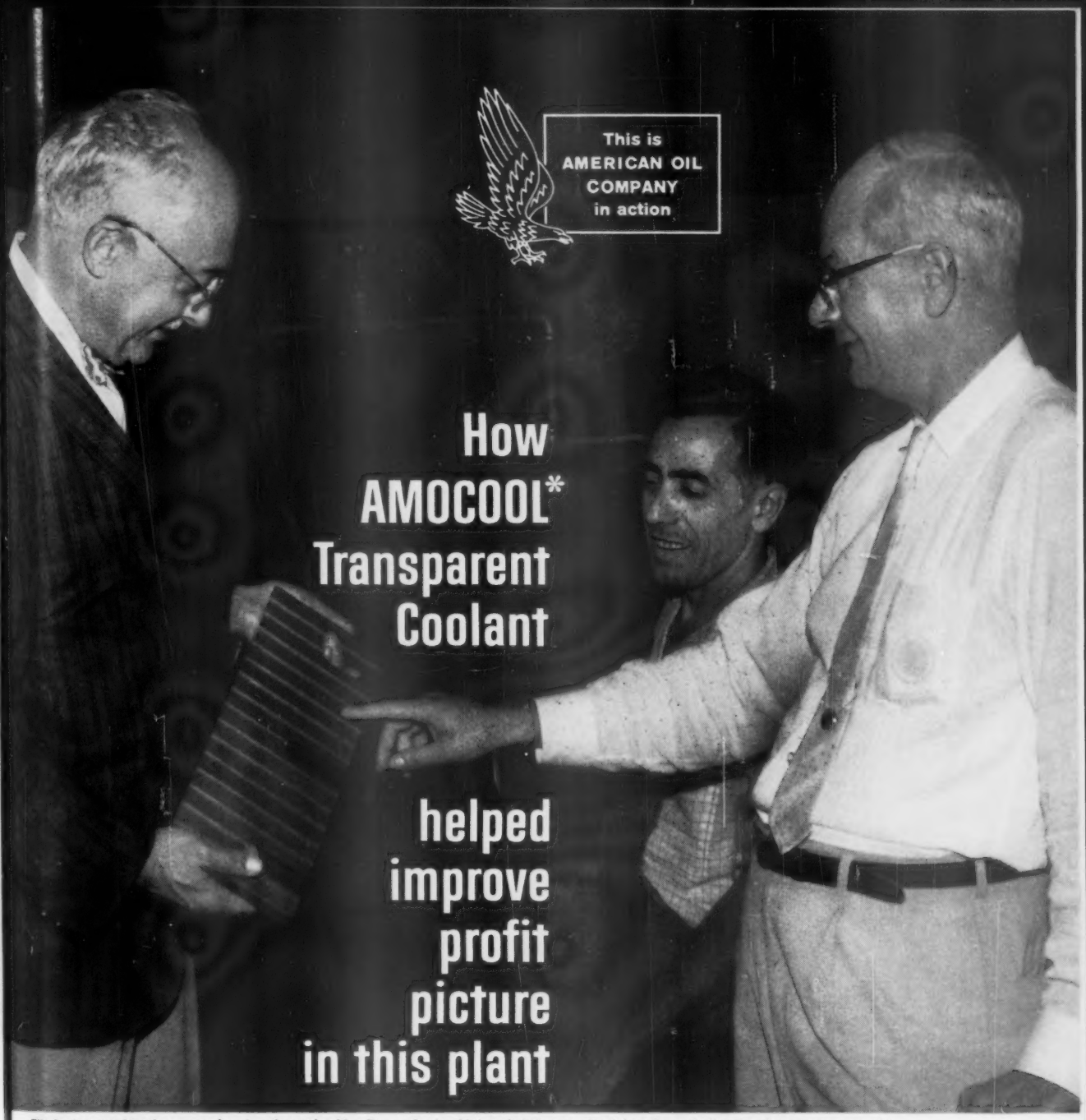
The new Danbury unit replaces the company's former operation at South Norwalk, Connecticut. The company also maintains offices and warehouse facilities in Philadelphia, Boston and Chicago.

Construction has started on the first units of a new Cutting Tool Center to be erected in **Greenfield, Mass.** by the **Threadwell Tap & Die Company.**

The first unit, to consist of a 65,000 square foot office and plant, will house Threadwell's tap, die, keyway broach, and gage manufacturing operations and Threadwell's Conway Manufacturing Division.

Plans call for expansion of the center to provide for Threadwell's **Cogsdill Twist Drill Division.**

Operations in the new cutting tool center are expected to start in March, 1962.




# How AMOCOOL* Transparent Coolant helped improve profit picture in this plant

Eliminate reworking because of rust, reduce wheel loading and extend intervals between wheel dressings; do these and you increase profit per unit, explains Detroit Edge Tool president, Dan Ebbing, to P. E. "Pappy" Stratton of American Oil. Sam Vineh, operator, looks on.



by PAUL E. "PAPPY" STRATTON

**About the Author.**

*"Pappy" Stratton has been providing technical help on lubrication and metalworking problems to customers in the Detroit area for nearly all of the twenty-five years he has been working for the company. In addition to having this store of practical experience to help him, Pappy has completed the Company's Sales Engineering School.*

☆ ☆ ☆

By using a soap-base grinding compound, Detroit Edge Tool Company was getting excessive corrosion and rust on work and grinding machines. Oil vapor was collecting on machines and on the ceiling, causing dirty working conditions. Most important, high wheel loading was causing frequent down-time for wheel dressings.

We worked out a test program on AMOCOOL Transparent Coolant with the management. On our first test on one surface grinder, feed pressure was cut substantially while at the same time metal removal was increased.

The cost of reworking parts to remove rust was eliminated. Time required to clean machines to get rid of the odor was cut in half. Less wheel loading and fewer wheel dressings have upped production and reduced costs. Our test program paid out in an improved profit picture. All grinding and drilling equipment has been converted to AMOCOOL Transparent Coolant.

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Would you like this kind of technical help to assist you in improving profits? Get it by calling the American Oil Company office nearest you.

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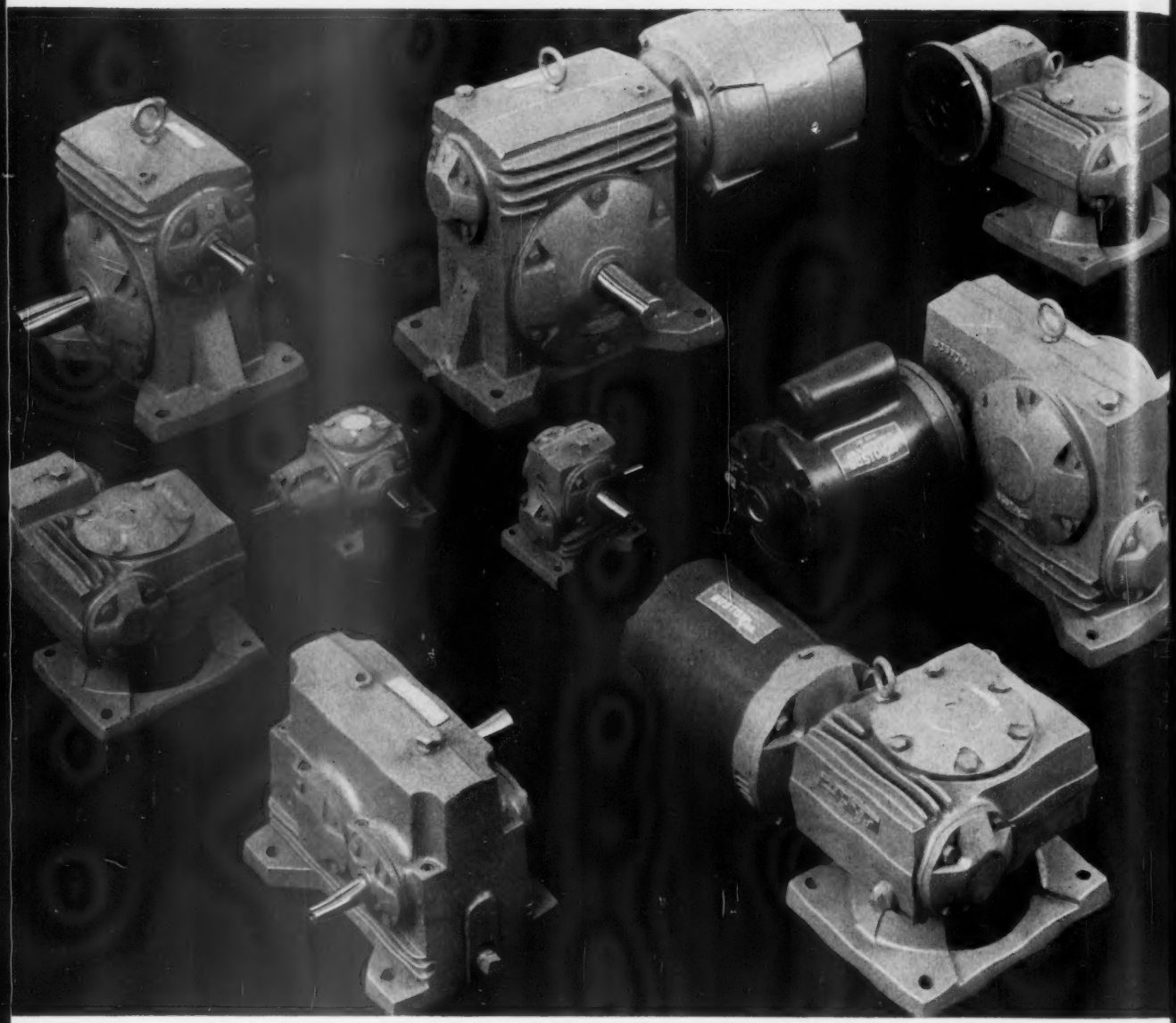
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910 SOUTH MICHIGAN AVENUE
CHICAGO 80, ILLINOIS

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# BOSTON Gear QUALITY

time-proved REDUCTOR® and RATIOMOTOR® reliability
**largest selection** for worm-geared drives **from stock**



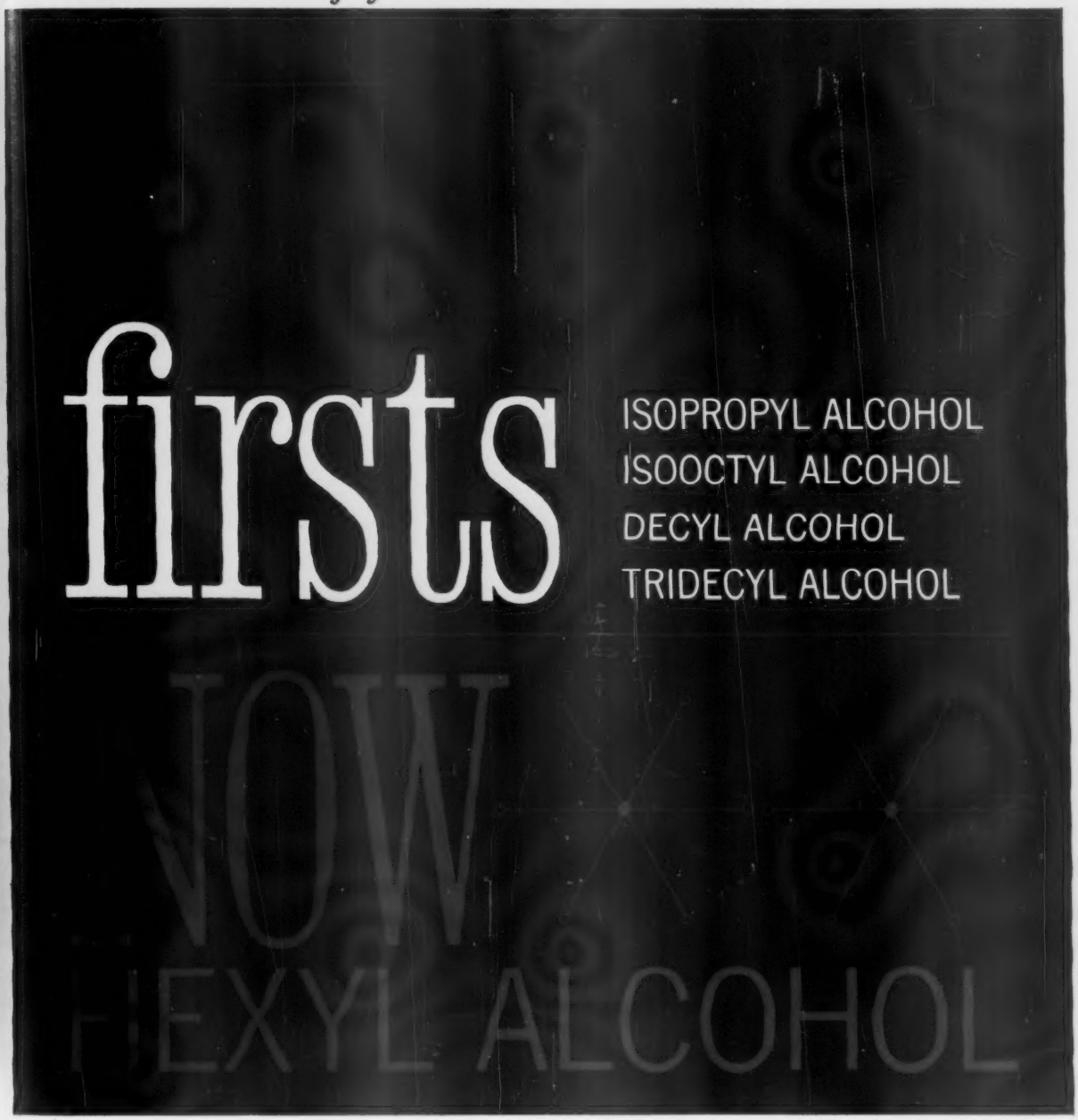
Horizontal or vertical, right angle or parallel, single or double reduction.
**Reductors** – for .10 to 15 HP drives – ratios 1:1 to 3600:1.
**Ratiomotors** – .035 to 10 HP – output torque 4 to 9400 in. lbs.
*Detachable motor design. Motor can be changed in minutes.*
Ratiomotors sold also without motors as **Flanged Reductors.**
**1605 stock** sizes, types, ratios. See Catalog 57 for complete listings.
**IN STOCK at your nearby DISTRIBUTOR**

BOSTON Gear®

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Quincy 71, Mass.

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*What's News in Enjay Chemicals...*




Since introducing isopropyl alcohol in the early "twenties," Enjay has pioneered in the development and production of many advanced chemical raw materials for industry.

In the field of alcohols, hexyl alcohol is the latest in a long line of Enjay "firsts" designed to meet the changing requirements of our customers. This new oxo alcohol is offered for quick, dependable delivery from conveniently located supply points.

Next time you need alcohols or other chemical raw materials, be sure to call on Enjay. For more information, write to Enjay at 15 West 51st Street, New York 19, N. Y.

**SPECIFICATIONS OF ENJAY HEXYL ALCOHOL**

| | |
|---|---|
| Purity (wt per cent) min. | 98.0 |
| Specific Gravity (20/20°C) min | 0.819 |
| Specific Gravity (20/20°C) max | 0.821 |
| Acidity, as acetic acid (wt per cent) max. | 0.001 |
| Color (Pt-Co) max | 10 |
| Water (wt per cent) max | 0.10 |
| Carbonyl Number (mg KOH/g) max. | 0.2 |
| Distillation (°C) | |
| Initial min | 149 |
| Dry Point max. | 156 |

Appearance: Clear and Free of Suspended Matter

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

**ENJAY CHEMICAL COMPANY**

**A DIVISION OF HUMBLE OIL & REFINING COMPANY**

ENJAY

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## SIZE AND GAGE RANGE

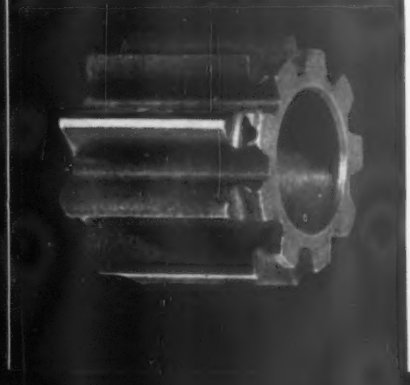
| TUBING | | | | PIPE | | | | |
|---|---|---|---|---|---|---|---|---|
| Outside Diameter of Tube | Wall Thickness BWG | Outside Diameter of Tube | Wall Thickness BWG | Pipe Size | Outside Diameter | Schedule 40S Wall | Schedule 10S Wall | Schedule 5S Wall |
| ¼″ | 16-25 | 1 1/16″ | 10-20 | ⅛″ | .405″ | .068″ | .049″ | |
| ⅜″ | 16-25 | 1⅜″ | 10-20 | ¼″ | .540″ | .088″ | .065″ | |
| 7/16″ | 16-25 | 1 11/16″ | 10-20 | ⅜″ | .675″ | .091″ | .065″ | |
| ½″ | 14-25 | 1¾″ | 10-20 | ½″ | .840″ | .109″ | .083″ | .065″ |
| 9/16″ | 14-25 | 1⅞″ | 10-20 | ¾″ | 1.050″ | .113″ | .083″ | .065″ |
| ⅝″ | 14-24 | 2″ | 9-20 | 1″ | 1.315″ | .133″ | .109″ | .065″ |
| 11/16″ | 14-24 | 2⅛″ | 9-20 | 1¼″ | 1.660″ | .140″ | .109″ | .065″ |
| ¾″ | 13-24 | 2¼″ | 9-20 | 1½″ | 1.900″ | .145″ | .109″ | .065″ |
| 13/16″ | 13-24 | 2⅜″ | 8-20 | 2″ | 2.375″ | .154″ | .109″ | .065″ |
| ⅞″ | 12-23 | 2½″ | 8-20 | 2½″ | 2.875″ | | .120″ | .083″ |
| 15/16″ | 12-23 | 2⅝″ | 8-20 | 3″ | 3.500″ | | .120″ | .083″ |
| 1″ | 11-23 | 2¾″ | 8-20 | 3½″ | 4.000″ | | .120″ | .083″ |
| 1 1/16″ | 11-22 | 2⅞″ | 8-20 | 4″ | 4.500″ | | .120″ | .083″ |
| 1⅛″ | 11-22 | 3″ | 8-20 | | | | | |
| 1 3/16″ | 11-22 | 3¼″ | 8-16 | | | | | |
| 1¼″ | 11-22 | 3½″ | 8-16 | | | | | |
| 1 5/16″ | 11-20 | 3¾″ | 8-16 | | | | | |
| 1⅜″ | 11-20 | 4″ | 8-16 | | | | | |
| 1 7/16″ | 11-20 | 4½″ | 8-16 | | | | | |
| 1½″ | 10-20 | 5″ | 8-16 | | | | | |

**NOTE:**
These are common sizes. Intermediate sizes can be made. Inquiries for larger diameters and heavier walls should be referred to your Steel and Tubes Division representative.

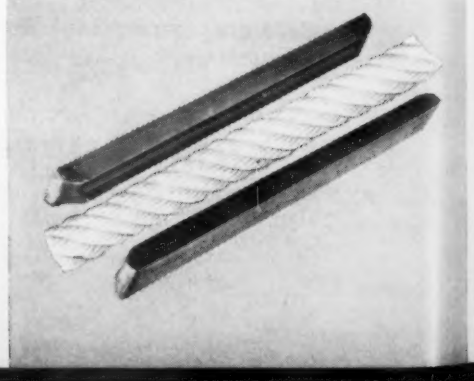
**ELECTRUNITE** Stainless Steel Tubing and Pipe are available in A.I.S.I. chrome-nickel analyses. Size range from ⅜″ O.D. through 5″ O.D. Pipe sizes are available from ⅛″ I.P.S. through 4″ I.P.S. in ASA schedule 40S; from ⅛″ I.P.S. through 4″ I.P.S. in schedule 10S; and from ½″ I.P.S. through 4″ I.P.S. in schedule 5S wall thicknesses. Write for additional information.

Republic's controlled atmosphere bright annealing furnace provides a smooth surface finish, eliminating the normal surface roughness of conventional open annealing and pickling.

**"GRIPS" SUCH AS THESE** connect San Francisco's unique cable cars to their propelling cables. Supplied by Republic in 15-foot bars, these cold drawn special sections are produced to exacting contours—ready for use as received, needing only to be cut to desired length. Send coupon for more information on Republic Cold Finished Steel for special requirements.



**AUTOMOBILE STARTER** pinion gear is made from Republic Cold Drawn Alloy Steel. With this material, manufacturers obtain great strength and dependability plus good machinability, all at reasonable cost. Write for full information.





# ELECTRUNITE

*Bright Annealed Stainless Steel Tubing*

## . . . in tune with today!

Supplying industry's need for quality stainless steel tubing and pipe has become a job for specialists. A job for Republic's Steel and Tubes Division—producers of ELECTRUNITE.

Republic's controlled atmosphere bright annealing furnaces both at the steel mill and at the tube processing plant provide a smooth, uniform surface finish and do away with the need for severe pickling and consequent roughening of the surface.

ELECTRUNITE Stainless Steel Tubing and Pipe are available for quick delivery in a complete range of sizes, gages, and wall thicknesses.

For pressure tube applications, Republic offers exclusive FARROWTEST, the ultimate in nondestructive testing, as a final test.

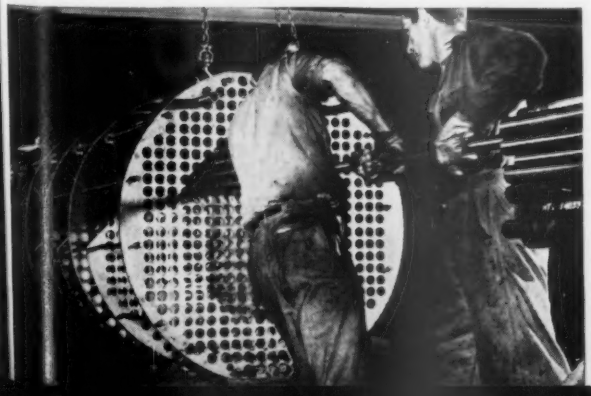
Call your Republic representative for complete information and delivery and price quotations.

**REPUBLIC STEEL**

Strong, Modern, Dependable

**REPUBLIC HAS THE FEEL FOR MODERN STEEL**

**MORE THAN A MILE OF ELECTRUNITE** Heat Exchanger Tubing goes into this heat exchanger. There is no room for failure in a system of this sort, so every inch is available, at the option of the customer, pre-proved by FARROW-TEST. This eddy-current test probes for and detects defects so minute that they pass other, less positive tests.



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**DEPT. PH-2753**
**1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO**

Please send more information on the following:

- ☐ Republic ELECTRUNITE® Stainless Steel Tubing
- ☐ Republic FARROWTESTED® ELECTRUNITE Heat Exchanger Tubes
- ☐ Republic Cold Finished Alloy Bars
- ☐ Republic Cold Finished Carbon Steel

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the ONE Caster Source is

# Faultless




Faultless manufactures over 10,000 caster types, sizes, and varieties . . . casters for every conceivable purpose . . . *The Casters* to move your products easily, in quantity, economically! Faultless Casters are engineered and tested to roll smoothly and efficiently under any load from 15 lbs. to 15,000 lbs. per caster. And Faultless manufactures a complete selection of swivel, rigid, plate, and stem casters, plus a wide variety of special application casters. This complete selection from one manufacturer—Faultless Caster Corporation—includes *The Casters* to reduce materials handling costs and increase efficiency at your plant.

Your Faultless Industrial Distributor, or your nearby Faultless Sales Engineer can supply you with detailed information on the complete Faultless Caster line. Also, your Faultless Distributor maintains a substantial stock of Casters for immediate shipment.

NOELTING
**Faultless Caster Corporation**
Casters
EVANSVILLE 7, INDIANA

Branch Offices in principal cities of the U.S.; see the Yellow Pages of the telephone book under "Casters." Canada: Stratford, Ontario

For More Facts Write No. 300 on Information Card—Last Page


## Purchasing People

(*Continued from page 50*)

in 1957. The following year he was named director of purchasing and trade relations.

**Northeastern Engineering, Manchester, N. H.,** has announced the appointment of **Mr. Charles E. Emmert** as director of purchasing. In this capacity, Mr. Emmert will be responsible for all company purchasing, business methods in material control, traffic,



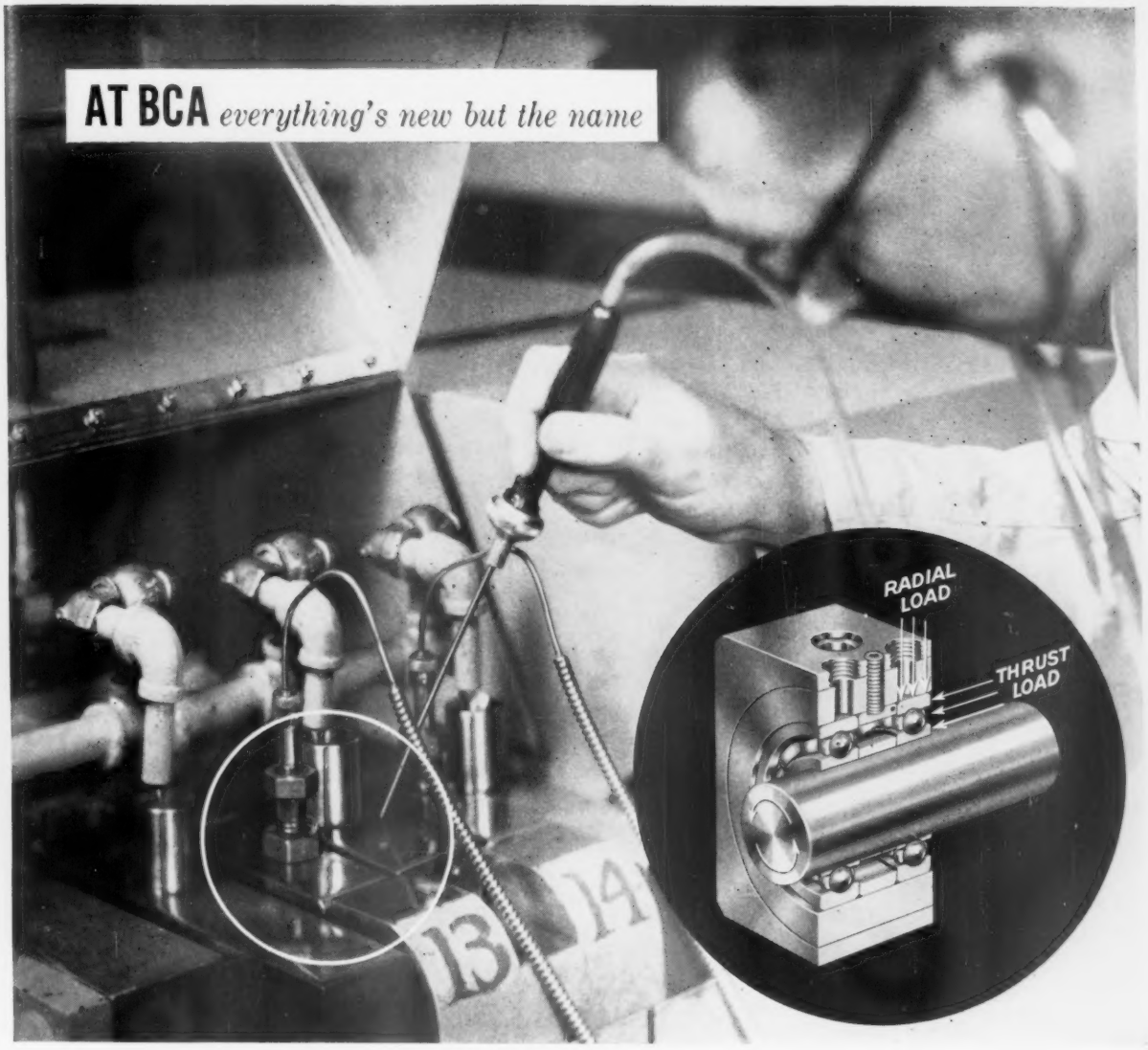
Charles E. Emmert

and plant facilities including maintenance.

Mr. Emmert was formerly Purchasing Agent for ACF Electronics Div. in Hyattsville, Md. He was active as an advisor to the board of directors of the Washington Purchasing Agents Association initiating a series of educational seminars for professional development while serving as chairman of that group's Value Analysis and Standardization Committee this year.

**Allied Chemical Corporation** has announced the appointment of **Edward N. Cahill** as supervisor of Delaware district purchasing for Allied's General Chemical Division, succeeding **C. H. Talley,** who retired.

Cahill will be headquartered at the Delaware Works in North Claymont. His area of responsibility will also include the General Chemical Division's Baker & Adamson Works located in Marcus Hook, Pennsylvania.




# BALL BEARING "HEARTBEATS"

## checked with unique new fatigue tester

With a stethoscope checking the "heartbeats," this unique fatigue tester is putting BCA ball bearings through a battery of exaggerated, but controlled, speed and load tests.

The fatigue testing machines are part of a group of testing devices that provide essential data for BCA's research program. Hydraulically testing BCA bearings at a variety of rotational speeds and under many combinations of radial and thrust loads, each machine checks to see that BCA ball bearings are maintaining the highest fatigue life standards . . . evaluates the fatigue characteristics of new ball bearing materials and new processing methods . . . helps select ball bearing lubricants to provide the longest possible fatigue life.

These machines and BCA's other unusual testing devices are designed and built to help us develop the highest quality ball bearings available. By simulating actual operating conditions, BCA ball bearings can be tested to *exceed* customer specifications.

BCA ball bearings are standard equipment throughout industry—for both original and replacement applications. BCA's complete line of ball bearing types and sizes . . . design, engineering and manufacturing skill . . . plus research and testing facilities, are some of the reasons that automotive, machine tool, earth moving, agricultural equipment manufacturers specify BCA. We'd like to serve you—with high-performance bearings or technical assistance. Contact Bearings Company of America, Division of Federal-Mogul-Bower Bearings, Inc., Lancaster, Pa.

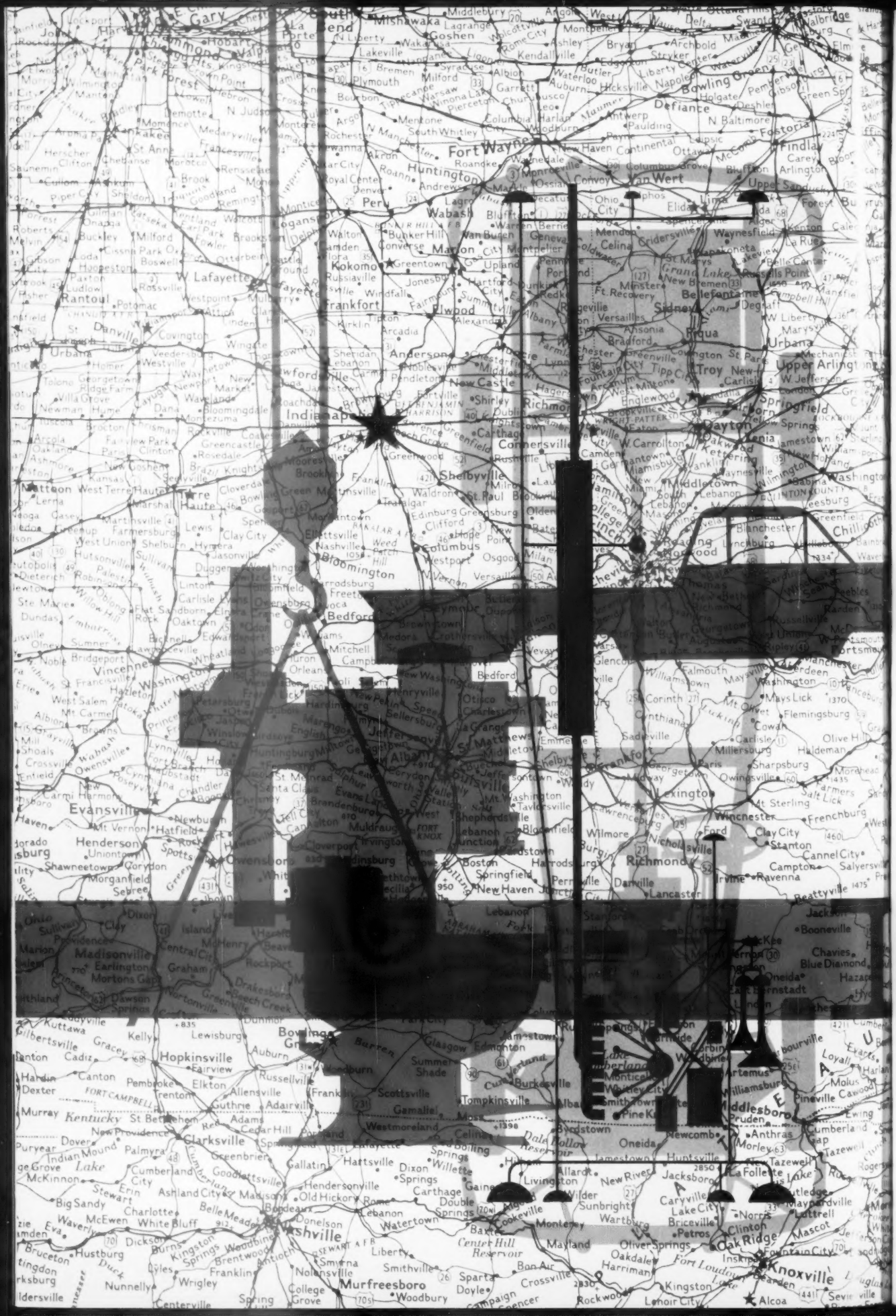
BCA

**BEARINGS COMPANY OF AMERICA**

ball bearings

DIVISION OF FEDERAL-MOGUL-BOWER BEARINGS, INC.

For More Facts Write No. 301 on Information Card—Last Page


Gary
Mishawaka
Goshen
Bowling Green
Defiance
Fort Wayne
Huntington
Van Wert
Findlay
Marion
Kokomo
Greentown
Lafayette
Rantoul
Frankfort
Elwood
Sidney
Piqua
Urbana
Troy
Springfield
Dayton
Anderson
New Castle
Shirley
Carthage
Connersville
Shelbyville
Columbus
Bloomington
Bedford
Vincennes
Evansville
Henderson
Madisonville
Hopkinsville
Clarksville
Nashville
Murfreesboro
Lexington
Richmond
Frankfort
Louisville
Boston
Springfield
New Haven
Danville
Lancaster
Irvine
Ravenna
Beattyville
Wilmore
Nicholasville
Wincnester
Clay City
Stanton
Campton
Salyersville
Mt Sterling
Frenchburg
Millersburg
Sharpsburg
Paris
Georgetown
Owingsville
Olive Hill
Flemingsburg
Mays Lick
Maysville
Corinth
Cynthiana
Sadieville
Carlisle
Falmouth
Williamstown
Aberdeen
Washington
Ripley
Russellville
Portsmouth
Glencoe
Vevay
Madison
Jeffersonville
Seymour
Columbus
Greensburg
Shelbyville
Franklin
Edinburg
Clifford
Hope
Nashville
Bloomington
Bedford
Mitchell
Orleans
Paoli
Salem
Corydon
Shawneetown
Morganfield
Sebree
Owensboro
Henderson
Hatfield
Mt Vernon
Princeton
Hopkinsville
Fairview
Pembroke
Elkton
Trenton
Russellville
Allensville
Adairville
Auburn
Scottsville
Tompkinsville
Glasgow
Edmonton
Summer Shade
Burkesville
Jamestown
Somerset
Monticello
Smithtown
Pine Knot
Williamsburg
Middlesboro
Pineville
Harlan
Cumberland Gap
Tazewell
La Follette
Jacksboro
Huntsville
Oneida
Newcomb
Morley
Anthras
Pruden
Artemus
Barbourville
Corbin
London
Manchester
Booneville
Chavies
Blue Diamond
Hazard
Oneida
Bernstadt
Jackson
Irvine
Ravenna
Beattyville
Lancaster
Danville
Harrodsburg
Springfield
Boston
New Haven
Lebanon
Lebanon Junction
Shepherdsville
Taylorsville
Mt Washington
Shelbyville
Simpsonville
Eminence
Pleasureville
Carrollton
Ghent
Warsaw
Sparta
Crossville
Rockwood
Kingston
Lenoir City
Alcoa
Knoxville
Fountain City
Oak Ridge
Clinton
Norris
Briceville
Petros
Lake City
Caryville
Jacksboro
Huntsville
Jamestown
Wartburg
Sunbright
Oliver Springs
Oakdale
Harriman
Fort Loudoun Lake
Watts Bar Lake
Tellico Plains
Madisonville
Sweetwater
Athens
Etowah
Calhoun
Cleveland
Chattanooga
Dayton
Spring City
Rockwood
Kingston
Lenoir City
Alcoa
Maryville
Louisville
Rockford
Friendsville
Townsend
Wears Valley
Sevierville
Pigeon Forge
Gatlinburg
Cosby
Del Rio
Newport
Dandridge
Jefferson City
Morristown
White Pine
Russellville
Rogersville
Kingsport
Bristol
Johnson City
Elizabethton
Erwin
Unicoi
Greeneville
Tusculum
Limestone
Chuckey
Jonesboro
Blountville
Bluff City
Abingdon
Damascus
Mendota
Gate City
Weber City
Duffield
Clinchport
Kingsport
Bristol
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Tusculum
Limestone
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Jonesboro
Blountville
Bluff City
Abingdon
Damascus
Mendota
Gate City
Weber City
Duffield
Clinchport

*67 years of service to the Industrial Middle West*




# INLAND STEEL IS HERE

Here, where only a few decades ago the land was dotted but sparsely with small factories, forges, tool shops. Here, where today thousands of miles of highways and railroads fan out in every direction. Here, where today giant factories feed the nation's industries with the machine tools, the components, the finished parts with and from which millions upon millions of wanted products are formed.

This is the crossroads of American Industry . . . and here, Inland serves.

This is a territory teeming with life, with creative activity, with bright plans for the future. It spreads across the length and breadth of Indiana and Tennessee—takes in the explosively productive central and western areas of Ohio—and Kentucky. This is a territory that gives to the nation, great political leaders, famous writers, artists, poets, educators.

From this land and the hands of its people come the products of steel—the gleaming lathes, drill presses, grinders, machine tools, that make our country the bulwark of the Free World. Out of its factories come the steel truck and car bodies, the ignition systems, radios, headlights, horns, heaters, exhaust systems—countless components for the hungry automobile assembly lines. Here, builders and fabricators take steel—bend it, cut it, shape it into the forms, structurals, tanks, girders for the nation's building and construction industries.

Here, years ago, Indiana Harbor Works of Inland Steel Company shipped its first orders of steels, among them the products of its new continuous sheet mill, one of the first modern mills in America. Throughout the years, Inland continued to serve and in serving learned the needs of this amazingly diverse territory—adjusted its steelmaking to the practices of its manufacturers.

Today, Inland accepts as a major goal—ever expanding service to the builders and manufacturers of this constantly developing territory. Inland is here, and here to stay. For *here* . . . is Inland's future.

**INLAND STEEL COMPANY**

30 West Monroe Street Chicago 3, Illinois

***Sales Offices:*** Chicago • Davenport • Detroit • Houston • Indianapolis Kansas City • Milwaukee • New York • St. Louis • St. Paul

***Other Members of the Inland Family:*** Joseph T. Ryerson & Son, Inc. • Inland Steel Products Company • Inland Steel Container Company* • Inland Lime & Stone Company*

**Division*

INLAND

*One of a series depicting market areas served by Inland • Art by Charles Harper*

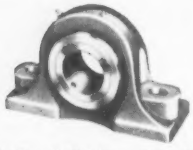
For More Facts Write No. 302 on Information Card—Last Page

DODGE PRODUCTS you should know

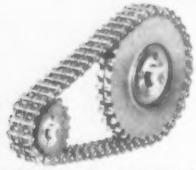




TORQUE-ARM
SPEED REDUCERS
*Cost less—deliver more!*



SC AND SCM
BALL BEARING PILLOW BLOCKS
*"The seal won't blow!"*



TAPER-LOCK
SPROCKETS
*No reboring—no waiting!*

●

Write for Bulletins!

- Torque-Arm Speed Reducers. 15 sizes—1 to 100 hp. Bulletin A-637
- Rolling Bearings—Ball and Timken Tapered Roller. Bulletin A-638
- Taper-Lock Sprocket and Dodge Roller Chain data. Bulletin A-644

DODGE MANUFACTURING CORPORATION
1300 Union Street • Mishawaka, Indiana

DODGE
of Mishawaka, Ind.

For More Facts Write No. 304
on Information Card—Last Page

## Purchasing People

**Mr. James F. White** has been appointed to the position of assistant purchasing agent—raw materials, for **Jones & Laughlin Steel Corporation,** Pittsburgh, Pa.

Mr. White, who formerly was a senior buyer—raw materials,



James F. White

has held several positions in J&L's purchasing department since coming to the corporation in 1942.

A native of Pittsburgh, he was graduated from Westinghouse High School, and attended Duquesne University.

**William S. Perkins** has been appointed director of purchases for the consumer products group of **Westinghouse Electric Corporation.** In his new position, Perkins serves as a consultant on all matters involving purchasing activities within the consumer products group. Included in his area of responsibility are the major appliance, portable appliance, television-radio, lamp and the electronic tube divisions as well as the company's semiconductor department and the Westinghouse Electric Supply Company.

Perkins received his bachelor of science degree in mechanical engineering from Carnegie Institute of Technology, and a master's degree in business administration from the Harvard Business School.

After holding several advertising and sales promotion positions with Westinghouse, Perkins was assigned to the company's purchasing department in 1953 as administrative assistant to the vice president, purchases and traffic. He later was assigned to purchasing positions at Buffalo, N. Y., and Lima, Ohio, before returning to Pittsburgh in 1957 as director of purchases, general products group.

**Mr. Lloyd C. Morrow** has been appointed manager of purchases of **Fairmont Railway Motors, Inc., Fairmont, Minn.** He succeeds Mr. John J. Schnabel, who has resigned. **Mr. Theodore A. Fancher** has been named assistant manager of purchases.

**Howard Smith,** formerly manager of office services, has been appointed purchasing agent, office supplies for **The Carborundum Company, Niagara Falls, New York.**

In his new position, Smith, in association with the director of purchasing, will be responsible



Howard Smith

for executive office purchases and will have company-wide responsibility for the standardization and purchase of office supplies, office equipment, and printed materials.

Since joining Carborundum in 1935, Smith has successively been payroll auditor, assistant to the manager of office services, supervisor of forms control and office supplies, senior procedures and systems analyst, and manager of office services.




**SAVE SPACE, SAVE WEIGHT,**

**SAVE MONEY!**

**Dyna V**

There's a *difference*, as you can see! The 10-groove D-section sheave in the foreground is replaced with the narrow 8-groove 5-V Dyna-V sheave on the line shaft. *Same power*, in a far more compact installation, with a $477 difference in price. And big future savings in belt replacement costs!

Everyone is going Dyna-V! Thousands of installations reveal that Dyna-V performance is *even better* than promised when we first introduced this new compact drive. In medium and high horsepower ranges, savings go as high as 30%!

Dyna-V can handle 3 times as much power in the same space. Dyna-V Sheaves decrease shaft overhang, increase bearing life. And Dyna-V Belts possess *all* premium qualities. Conditions requiring static conductivity or resistance to oil, moisture and heat are met by Dyna-V's one grade—the finest. Ask your Dodge Distributor, or write us for complete drive bulletin. Dyna-V Drives are available for capacities from 1 to 1500 hp.

**Dodge Manufacturing Corporation, 1300 Union St., Mishawaka, Ind.**

***The Products with the Pluses...***

**DODGE**

***of Mishawaka, Ind.***

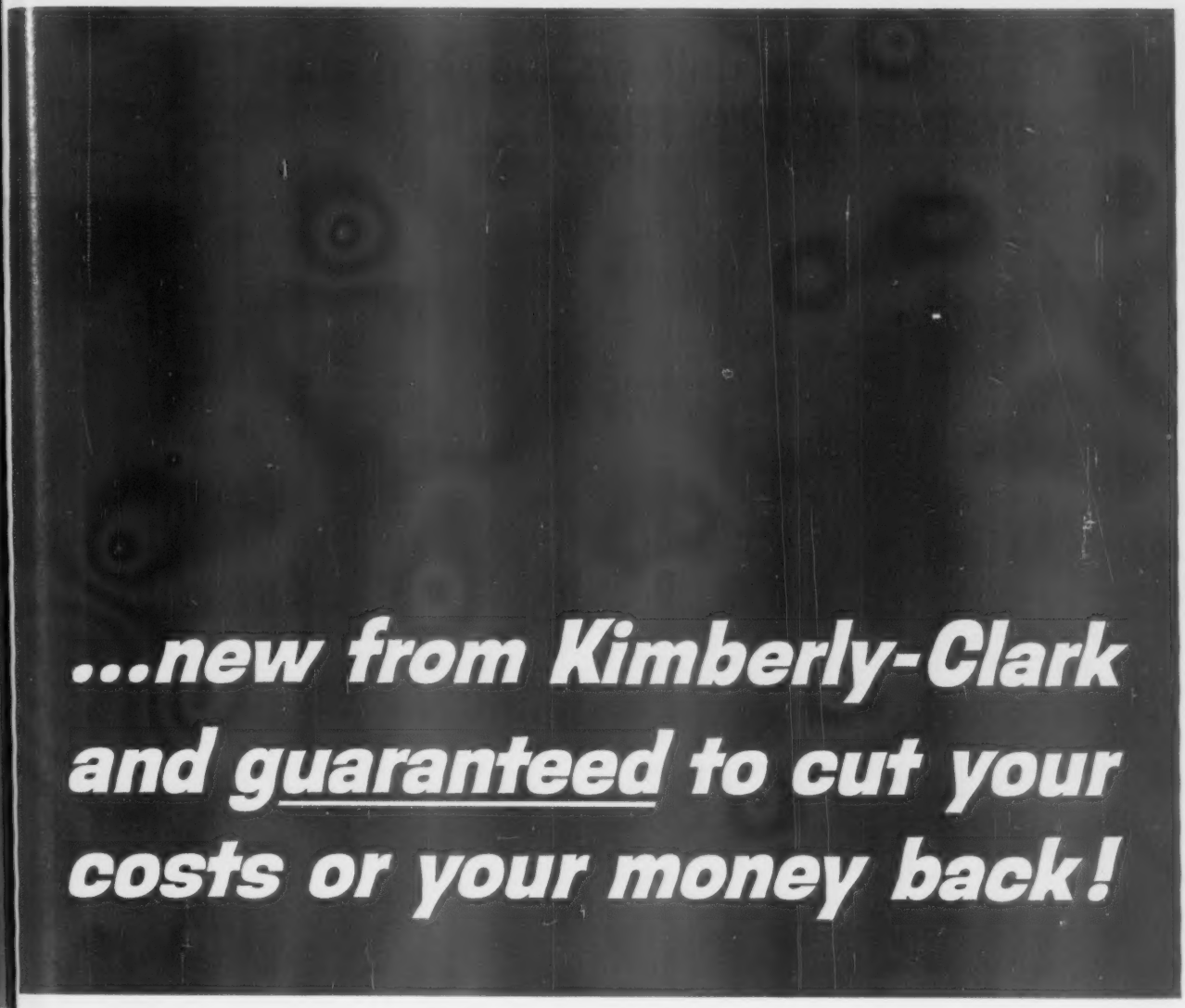


**CALL THE TRANSMISSIONEER,** your local Dodge Distributor. Look under "Dodge Transmissioneer" in the *white* pages of your phone book. Factory trained by Dodge, he can give you valuable assistance.

For More Facts Write No. 304 on Information Card—Last Page


Kimtowels®
DISPOSABLE SHOP TOWELS






**Your towel costs must come down or your money back!**

Kimberly-Clark's 1-month guaranteed cost-cutting plan will prove to you that KIMTOWELS can reduce wiping costs. Here's how the plan works: you order a month's supply of Kimtowels. Use them in your entire plant (or in a single department) just as you would cloth wipers. At the end of one month, if your wiping costs haven't gone down, we will gladly refund the cost of the Kimtowels. Fair enough? Send coupon today.

- Look, feel, perform like cloth!
- Usable—over and over!
- Far more economical than cloth!
- Strong, rugged—wet or dry!

plus—no rental; no collecting; no sorting; no storage; no records; no pilferage!

---

**Kimberly-Clark** Department No. P-101, Neenah, Wisconsin

At no obligation to me, please rush information on Kimtowels "GUARANTEED COST-CUTTING PLAN."

Name.....

Firm.....

Street.....

City.....Zone.....State.....

For More Facts Write No. 305 on Information Card—Last Page

## The Porter Alloyist delivers the right alloy
## IN THE SPOTS THAT COUNT





For More Facts Write No. 306 on Information Card—Last Page

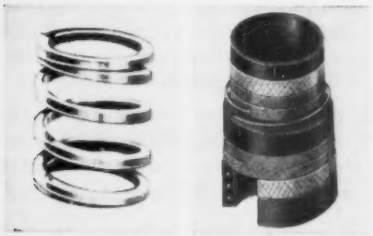


There can be no compromise for instant, reliable communication when disaster strikes. That's why the Porter Alloyist recommends phosphor bronze and other special alloys for telephone and switchboard components. Contact springs and other vital parts made from these alloys deliver high electrical conductivity and resist deformation after repeated use.

**THE PORTER ALLOYIST IS A SPECIALIST IN A WIDE RANGE OF SPECIAL METALS**

Porter's Riverside-Alloy Metal Division is your single reliable source for specialty alloys in 8 basic groups of wire, rod and strip . . . phosphor bronze, nickel silver, cupro nickel, brass, stainless steel, nickel, Monel and Inconel.

Ask for a free copy of "Alloys for Industry" describing our wide range of specialty alloys. Write H. K. Porter Company, Inc., Riverside-Alloy Metal Division, Riverside, N. J. Or contact our sales offices in Hartford, Chicago, East Orange, Atlanta, Cleveland, Detroit, Cincinnati, Los Angeles, and Rochester.



**PORTER** supplies stainless steel, "K" Monel and Inconel "X" wire for many types of springs.

**PORTER** carbon steel wire reinforces and lengthens the life of a wide range of industrial hose.

PORTER

*RIVERSIDE-ALLOY METAL DIVISION*
*H. K. PORTER COMPANY, INC.*

## Suppliers

**Mr. David Garrison** has been named Philadelphia district sales manager of **Synthane Corporation, Oaks, Pa.**, and **Glendale, Calif.**, manufacturers and fabricators of industrial laminated plastics.



David Garrison

He succeeds **Mr. J. K. Johnson**, a 32-year Synthane veteran who retired recently.

Mr. Garrison started with Synthane Corporation in 1937 as a laboratory technician. He was named to the Philadelphia sales staff in 1954, covering Philadelphia and Eastern Pennsylvania.

The board of directors of **The Colorado Fuel and Iron Corporation** has elected **Mr. R. L. Hanes** as vice president in charge of the **Western Division of C.F.& I.** and **Mr. E. George Hartmann** as vice president in charge of sales of the



R. L. Hanes



E. G. Hartmann

**Wickwire Spencer Steel and John A. Roebling's Sons Divisions** of the Corporation, it was announced recently.

Mr. Hanes had been serving as general manager of tubular sales since 1960. Prior to that he had been assistant to the vice president of sales. Mr. Hanes has been associated with C.F.&I. for 32 years and has held executive sales positions in the Corporation's general sales offices in Denver and in district offices.

Mr. Hartmann had been serving as vice president of sales of the John A. Roebling's Sons Division of C.F.&I. since 1958. He joined the John A. Roebling's Son's Company in 1940 as assistant sales manager. Prior to joining Roebling, Mr. Hartmann was associated with the Wickwire Steel Company. He has had 43 years experience in the wire and wire products industry.

**Mr. J. R. L. Williams** has been elected vice president, **European Operations, Worthington Corporation,** manufacturer of capital goods equipment machinery.

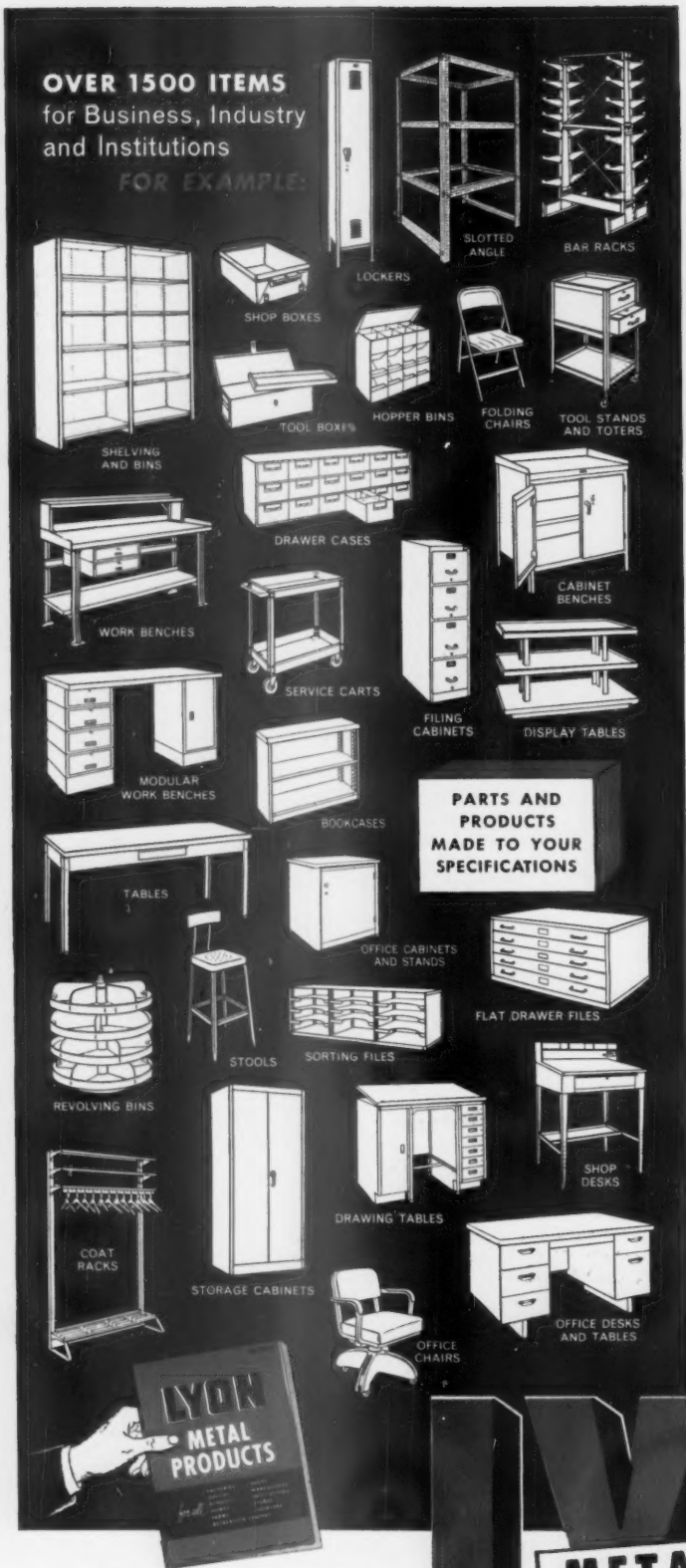
Mr. Williams, whose headquarters are in Paris, France, will co-



J. R. L. Williams

ordinate all production, engineering, sales and service functions of seven associate companies located in Austria, France, Germany, Italy and Spain. In his new capacity, Mr. Williams will also be responsible for integrating the output of these overseas plants with exports from the United States, and maintaining liaison with a number of European licensee manufacturers.

Mr. Williams joined Worthington in March 1959 as general European manager. Born in Paris and raised in Spain, he completed his education in electrical engineering at the Massachusetts Institute of Technology.




THIS CATALOG ILLUSTRATES
THE WORLD'S MOST
DIVERSIFIED LINE
OF STEEL EQUIPMENT
*IT'S FREE!*

# 5 TO 1 in '55

## AND NOW IT'S 7 TO 1

In a preference survey made by an independent organization back in 1955, key men in companies throughout the country gave Lyon 5 times more first choice votes than any other steel equipment manufacturer.

***In a comparable survey made in 1960, Lyon's first choice margin jumped to 7 to 1! And Lyon received more exclusive mentions than the next 22 companies combined!***

Your nearest Lyon Dealer offers the world's most diversified and *most preferred* line of steel equipment—quality protected to give you the most for your investment.

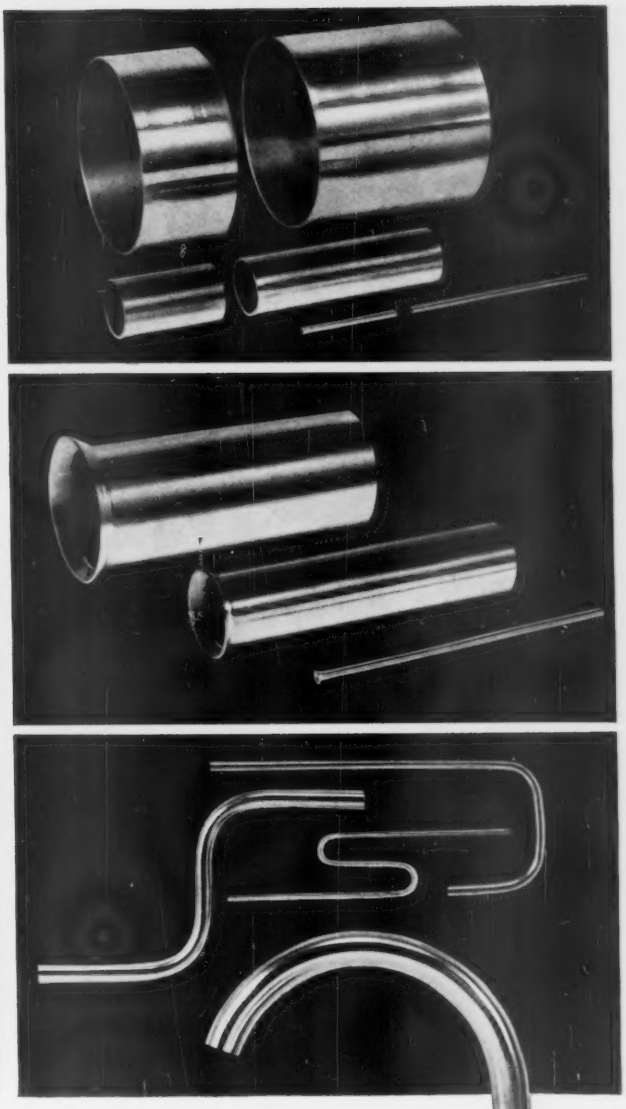
**LYON METAL PRODUCTS, INC.**

General Offices: 1033 Monroe Ave., Aurora, Illinois
Factories in Aurora, Ill.—York, Pa.—Los Angeles
Dealers and Branches in All Principal Cities

# LYON®
## METAL PRODUCTS

For More Facts Write No. 314 on Information Card—Last Page

# CUTTING
# FLARING
# BENDING



## only Imperial-Eastman offers every tool you need for your best tube circuitry

Here's why: Imperial-Eastman offers the right tool for every purpose—cutting, flaring, bending, deburring, reaming, swaging, sizing, refacing. It's the most complete line in the industry. No matter what fitting or tube *size* you work with (from ⅛" to 4⅛") there's an Imperial-Eastman tool for the job. Every Imperial-Eastman tool is *job-matched* to perform highest quality work at maximum efficiency. Every one is *precision-engineered* to deliver maximum performance.

To be sure *your* tube circuitry is always at its best, insist on Imperial-Eastman tubing tools. Write for Catalog 3121.

**IMPERIAL EASTMAN**

Imperial-Eastman Corporation General Offices: 6300 West Howard Street, Chicago 48, Illinois

Imperial-Eastman Corporation (Canada) Ltd., Barrie, Ontario • Imperial-Eastman, S.A., Apartado Postal 26544, Mexico 13, D.F.

For More Facts Write No. 308 on Information Card—Last Page




# Quality Tools

## ARE YOUR BEST INVESTMENT

CLEVELAND Tools help you reduce your tooling costs, because . . .

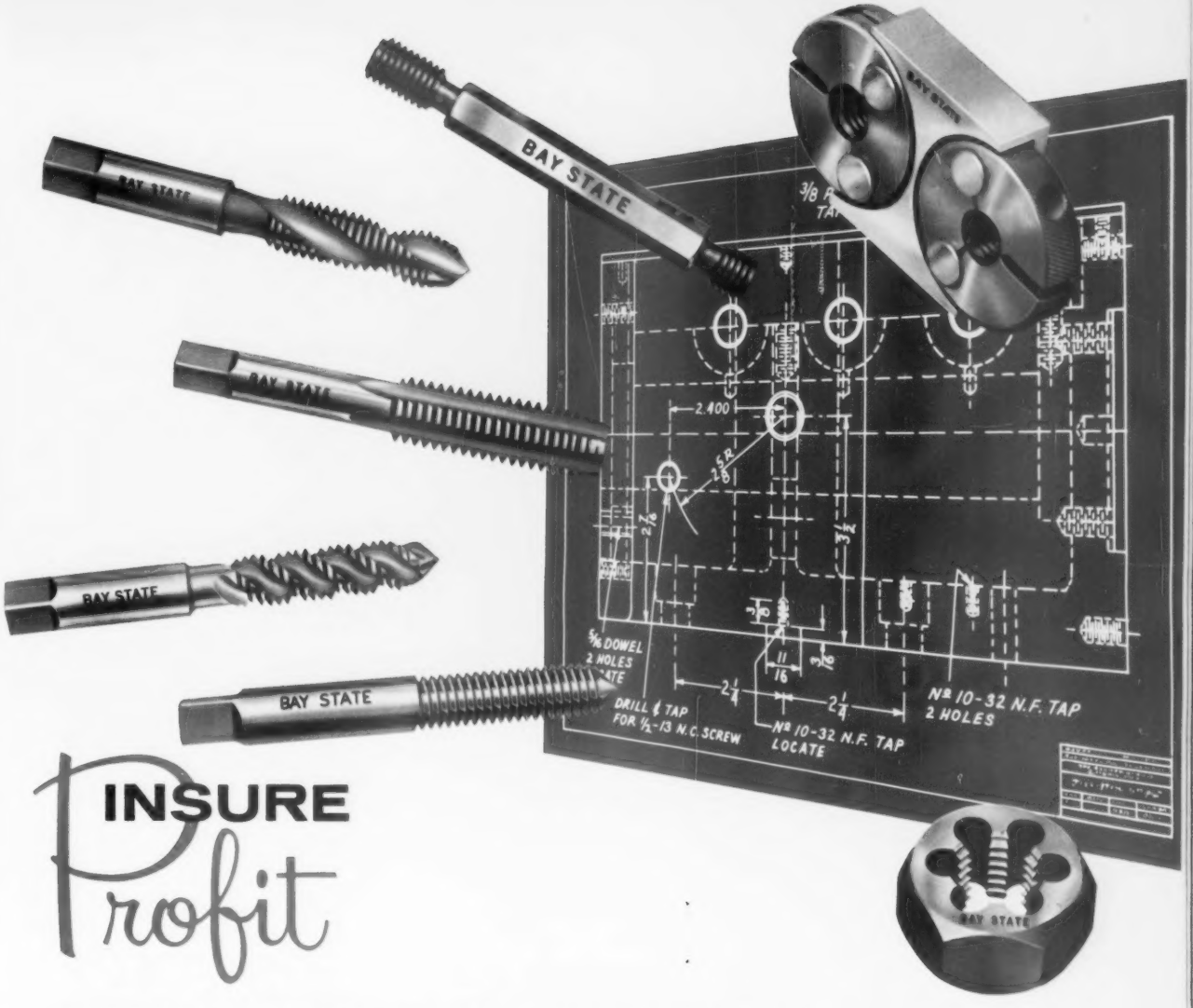
- Their built-in quality lowers your manufacturing costs.
- You can get CLEVELAND QUALITY in a wide range of cutting tools.
- Fast delivery from local distributors' stocks, to maintain your production schedules.

PLUS the added benefits of "Teamwork Tooling", whereby the talents of many people are combined to effectively reduce your costs. "Teamwork Tooling" includes not only our engineering skills and modern manufacturing facilities, but also the capable services of our Suppliers, Stockrooms, Service Representatives and Distributors.

**THE CLEVELAND TWIST DRILL CO.**
Cleveland 1, Ohio

QUALITY CUTTING TOOLS • BEST SERVICE THROUGH YOUR LOCAL DISTRIBUTOR

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# INSURE Profit

## IN YOUR THREADING OPERATIONS




BAY STATE *Quality* Taps, Dies and Gages will produce your threaded parts *at lower cost*, because . . .

- Skillfully engineered and manufactured to give you *more threaded parts per tool.*
- A complete line of Taps, Dies and Gages for all threading operations.
- Prompt service from your local Industrial Supply Distributor.

**PLUS** our trained Service Representatives operating out of strategically located stockrooms to help you solve your thread cutting and gaging problems.

**BAY STATE TAP AND DIE CO.**
**Mansfield, Mass.**

Subsidiary of The Cleveland Twist Drill Co.

QUALITY BAY STATE CUTTING TOOLS • BEST SERVICE THROUGH YOUR LOCAL DISTRIBUTOR

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No. 11 *in a series of washroom survey comments from "SBS soap counselors"*

*We showed them how to end Soap Waste permanently!*

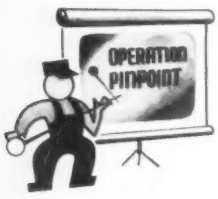


**James B. Workman**

SBS Soap Counselor on the Eastern Seaboard, has helped many plants update their wash-up practices. Here's his report after surveying a electrical equipment manufacturing plant:

"We observed the usual powdered soap waste in 23 of the 26 washrooms surveyed. Soap scattered about made an unsightly mess of the washbasins, made the floors dangerously slippery and made cleaning-up twice the job it should have been. You could see the plant's hygiene dollars — both manpower and materials — literally disappearing down the drains!

"To correct this problem, we recommended SBS 60, a thick-bodied cream that clings to skin, won't run-off hands or faces like a powdered soap and is almost impossible to waste. They were convinced when we told them that based upon our experience in other plants, a single gallon of SBS 60 will give their employees 2400 economical, waste-free washes!"




***Money-saving suggestions*** like this *begin* with OPERATION PINPOINT–a thought-provoking presentation filled with facts about skin hygiene and washroom maintenance. The SBS soap counselor serving your area can pinpoint the right soap to do every skin cleansing job best and at lowest cost in your plant. Let him show you OPERATION PINPOINT . . . just call your nearest SBS office, collect.

*the washword of industry*

**sugar beet products co.**

SAGINAW, MICH. • Los Angeles, Calif. • Newark, N.J.
CANADA: Chemical By-Products, Ltd., Toronto, Ontario

SBS

For More Facts Write No. 311 on Information Card—Last Page


## Rubber Prices Steady Despite Russian Buying

(*Continued from page 32*)

for the full impact of this increase in bringing previously substantial world stocks down to lower levels.

Russian direct buying through Singapore has been on a substantially increased scale in the last few months. The rise in shipments is about 40,000 tons.

Indications are that the mainland Chinese, as well as the Russians, have also been taking more rubber from Ceylon and Indonesia. World stocks have dropped about 2% this year and at 122,000 tons are no more than 8% higher than they were a year ago —when fears of inadequate supplies were strong.

However, the lower pace of industrial activity in many countries outside the Communist bloc must exert a restraining influence on any expansion in demand for rubber. This expansion is not greatly affected by the industrial activity in the United States, because this country uses by far the greatest proportion of synthetic of ail the major rubber users—and there is considerable excess capacity in the synthetic plants. A comparable rise in European industrial production would have a much more marked impact on usage of natural rubber, but this is not anticipated at present.

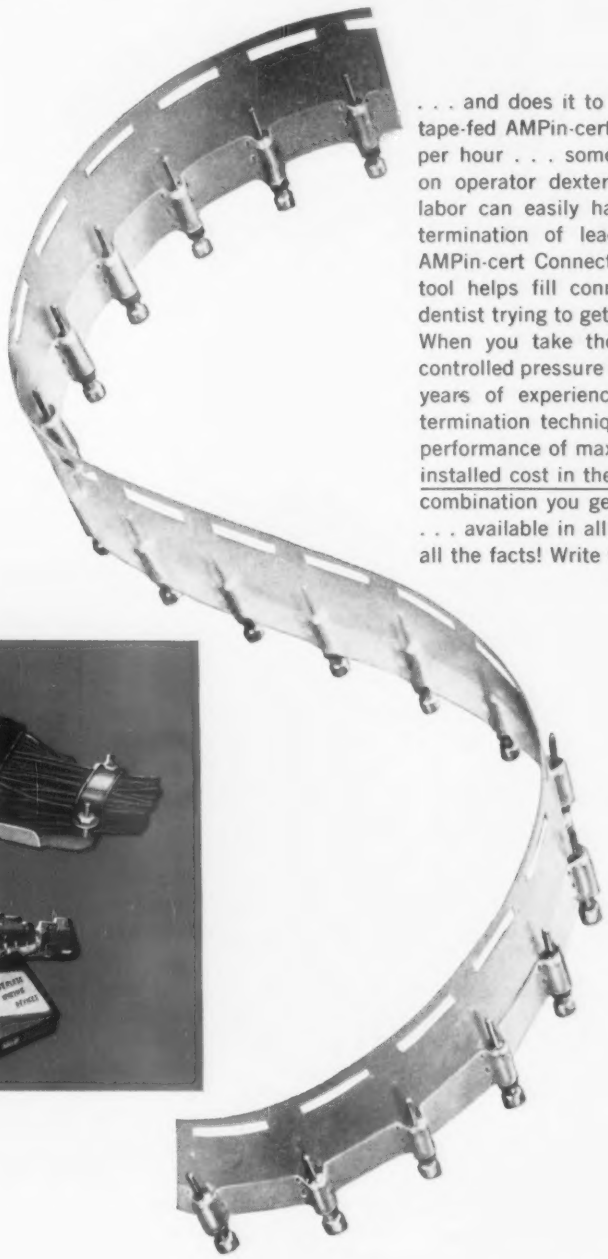
## Foreign Aid Programs May Change Radically

Despite the fact that the Administration's requests were trimmed back by Congress, it is now clear that United States aid to foreign countries has been put on a more solid basis. In fact, it is becoming recognized as a built-in feature of the economy instead of a special effort that must be renewed each year.

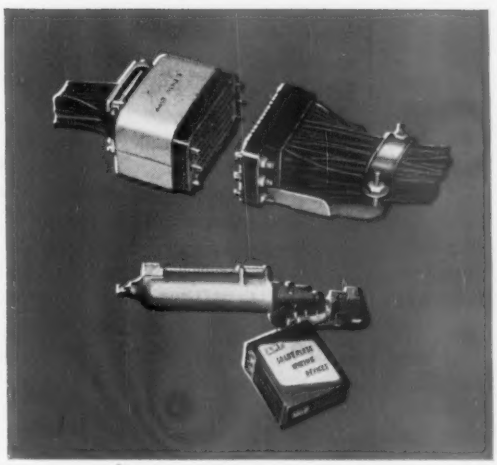
Among all the discussions on the techniques and methods of assisting the underdeveloped countries, a growing theme is that aid cannot be devoted simply to equipping them with the outward paraphernalia of a modern industrial society. Many experts believe that unless there is an adequate foundation for such a

(*Please turn to page 246*)

# THIS TAPE PLAYS BACK THE SOUND OF MONEY...



. . . and does it to the tune of more than 1,600 tape-fed AMPin-cert Pin and Socket terminations per hour . . . sometimes even more, depending on operator dexterity! Lower cost, semi-skilled labor can easily handle not only the automatic termination of leads but also the loading of AMPin-cert Connector blocks. A simple insertion tool helps fill connector cavities faster than a dentist trying to get away for an afternoon of golf. When you take these advantages and add the controlled pressure crimp backed by AMP's twenty years of experience in the field of solderless termination techniques . . . you have connector performance of maximum reliability at the lowest installed cost in the industry. This is the winning combination you get with AMPin-cert Connectors . . . available in all sizes and configurations. Get all the facts! Write today!



# AMP INCORPORATED

**GENERAL OFFICES: HARRISBURG, PENNSYLVANIA**

AMP products and engineering assistance are available through subsidiary companies in: Australia • Canada • England • France • Holland • Italy • Japan • Mexico • West Germany

For More Facts Write No. 312 on Information Card—Last Page

# New all-wrench tool set cuts maintenance time

Snap-on

181-piece nut-turning set



SNAP-ON 5181-GS-B Set
181 tools in metal box

This SNAP-ON set is the timesaving answer for a maintenance man with a wide range of nut-turning jobs. The selection of 181 tools contains every standard wrench size from 3/16 to 1-7/8 in. Included are open-end wrenches, box wrenches, combination wrenches, flexible head wrenches, ratcheting box wrenches and socket wrenches.

Socket wrenches include handles and sockets in 1/4-in., 3/8-in., 1/2-in. and 3/4-in. square drive sizes. You get a full range of socket handles — ratchets, speeders, slide bars, spinners, extension bars.

Tool chest embodies all the best SNAP-ON construction features — full-length, piano-type hinges; reinforced channel top; easy-sliding, no-sag drawers; close spot welding for added strength; double-rolled edges for rigidity; and strong trunk handles for lifting the chest.

**Got a tool problem — ask your SNAP-ON sales engineer**

The SNAP-ON sales engineer is a specialist who devotes *all of his time* to the industrial application of wrenches and mechanics' hand tools. He welcomes the opportunity to help you solve your assembly and maintenance tool problems. Write us for his name or call your nearest branch. Free catalog of industrial wrenches is yours for the asking.

*FOR ALL INDUSTRY*

**SNAP-ON TOOLS**

8019-J 28th AVENUE • KENOSHA, WISCONSIN

For More Facts Write No. 313 on Information Card—Last Page


## Rubber Prices Steady

(*Continued from page* 244)

structure, it will never take roo effectively—and the money wi be wasted both by donor and b doubtfully grateful recipient.

Unplanned aid is now bein recognized as a mixed blessing Failure to achieve the hoped fo goals results in frustration and negative political attitude toward the countries providing the aid

From now on, American aid will probably concentrate increas ingly on modest and relevant projects. There will be exceptions, however, such as the Volta Dam in Ghana where the scheme cannot be carried through at all except on the complete scale.

### Risks Are Present

One important consequence is that aid will be channelled largely towards improving the poorer countries' existing resources. Less effort may be made, at least in the short run, in diversifying their economies away from reliance on one or two staple commodities or minerals.

The conditions under which some materials are produced may therefore be improved, to the point at which supplies are expanded and costs lowered. But there is an obvious danger here of aid aggravating an already incipient surplus. In addition, such aid could undermine the price of a commodity, impair the foreign currency incomes of the countries supposedly being helped, and reduce the amount of goods they are able to import.

Of course, it is possible that effective aid will bring about a sufficient fall in production costs for even a decline in market prices to yield a higher net return. Another alternative is to use the improved efficiency to pay higher wages, thus creating greater purchasing power. Where overproduction threatens, it is easier and more profitable to operate modernized facilities below capacity than outmoded plants at full capacity.

Nevertheless, aid programs will have to be implemented with great care, for the risks of a dangerous backfire are always present.



# ACE

# HARD RUBBER-LINED GATE VALVES

## FULL PROTECTION AT REASONABLE COST

Corrosive liquids never get near the metal in this long-wearing gate valve. All wetted parts are protected by Ace hard rubber, noted for enduring resistance to acids, bleaches, and a host of chemicals. Not just a thin coating, but a thick, homogeneous lining that's calendered layer over layer and applied with permanent bonding techniques to make weak spots impossible.

Precision-machined disc and seat remain drip-tight even after long use. Operation is smooth, low friction. (Wet hard rubber is an excellent bearing material.) Can be packed while open under full pressure. Rated 125 psi. Std. A.S.M.E. flanges. Stocked 2″ to 8″; larger sizes to 16″ on order.

Ask to see the Ace Gate Valve, and ask its price. It's economical enough to replace many special valves in your plant . . . and reliable enough to make high-priced alloy metal valves an unnecessary luxury. Write American Hard Rubber Company today.




*Ask for helpful Piping Systems Data Bulletin CE-51/52*

**CHEMICAL EQUIPMENT DEPARTMENT**

## American Hard Rubber Company

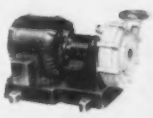
ACE ROAD, BUTLER, NEW JERSEY



Rubber-lined steel tanks and special equipment. Also custom compounds for field application **Bul. CE-53.**



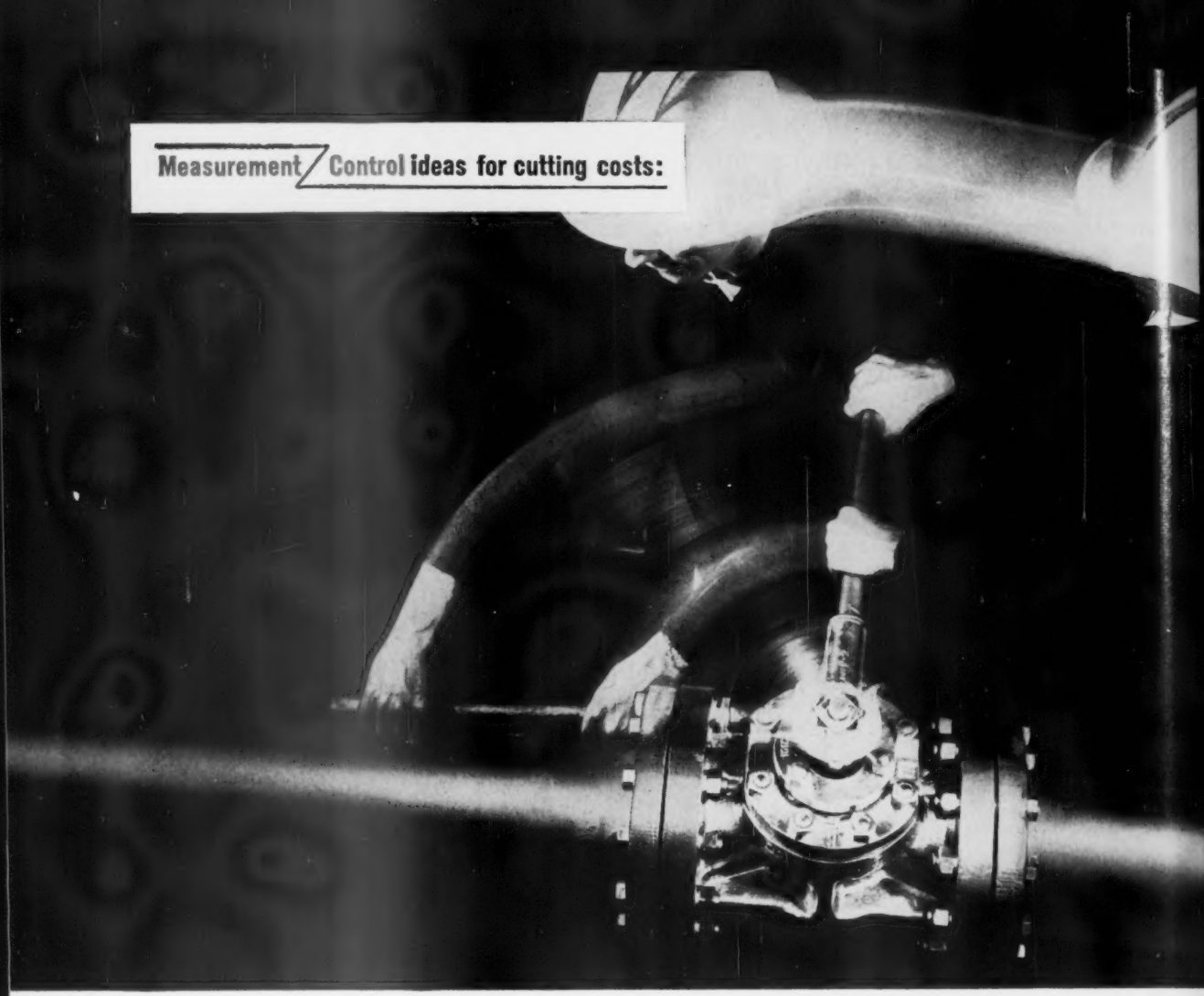
Rubber-lined steel pipe . . . combines strength of steel with chemical resistance of Ace Hard Rubber. **Bul. CE-51/52.**



Acid pumps, centrifugal and gear types, protected by Ace Hard Rubber. Full line to 350 gpm. **Bul. CE-55.**



Hard Rubber pipe and fittings, including heat-resistant Tempron for handling hot corrosives. **Buls. CE-51/52** and **96.**




# SAVE MONEY ON TOUGH SERVICES WITH QUARTER-TURN LUBRICATED PLUG VALVES

You'll get a big bonus of longer life and bottle-tight shut-off with Rockwell-Nordstrom lubricated plug valves. Fully protected seats and dependable operation assured by lubrication mean superior performance on difficult services—pickling acids, caustics, slurries, etc. On other and easier services, you will also benefit, since Rockwell-Nordstrom valves cost no more than non-lubricated valves and in some instances less. They open or shut quickly with a quarter turn of the wrench.

There are literally hundreds of ways Rockwell measurement and control equipment is helping manufacturing and processing plants save time, money and materials. The experience of the world's largest single manufacturer of valves, meters, regulators and other equipment for measurement and control can pay off for you, too. Wherever liquids or gases flow through pipes in your plant there is a real opportunity for savings. It will cost you nothing to get the facts . . . Simply send the coupon.

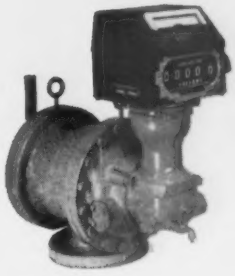
# ROCKWELL

**The leading single source for Measurement/Control products and ideas**

## "IN-PLANT" METERING:

### LIQUIDS AND GASES

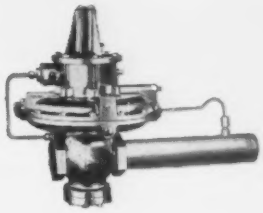


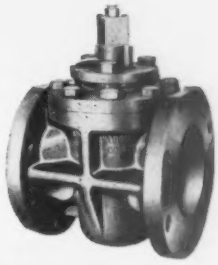


Rockwell gas and liquid meters, properly applied, can improve quality control, sharpen cost control, and prevent waste in almost every plant department. A Rockwell Field Engineer can help you find *where* meters will cut costs . . . and Rockwell has a complete line of meters to measure practically anything that will flow through pipe.

## CONTROLLING PIPED MATERIAL:

### LIQUIDS AND GASES





More efficient control of all the material flowing through pipes in your plant is a positive step in cutting costs. There are new applications and new ideas for using gas pressure regulators and valves that will stop wasteful, inefficient, and dangerous handling of fuels, production fluids, and products. A Rockwell Field Engineer can show you *where* and *how*.

## HOW MUCH COULD YOU SAVE?

There is hardly a plant anywhere—including yours—where the right application of the right measurement and control methods and equipment won't produce savings many times the modest cost involved. Certainly it's worth investigating—especially since it will cost you nothing to find out. Simply mail the coupon now.

*SEND COUPON NOW!*

MEASUREMENT AND CONTROL DEVICES

all fine products by

**ROCKWELL**

---

**Rockwell Manufacturing Company, Dept. MC3K, Philadelphia 8, Pa.**

*Please send me literature as checked:*

- ☐ Valving gas, liquids and slurries. Bulletin V-612
- ☐ Measuring gases. Bulletin 1085
- ☐ Regulating gas pressures. Bulletins 1044, 1059, 1082, 1086
- ☐ Measuring liquids. Bulletins P-100, PI-666, OG-400
- ☐ Condensed catalog of all products. Bulletin C-5000
- ☐ Please have your Field Engineer call.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

For More Facts Write No. 315 on Information Card—Last Page




# PLAIN THINGS...FANCY

These widely-assorted items have one thing in common: each travels de luxe in the corrugated safety of a St. Regis® container. It's our job to know a world of different products —and to design just the right containers for shipping them.

And, if you think we have designs on your product—you're right! We make it our business to ask for new opportunities to design boxes that give your product greatest p You ca tection at lowest cost. You may need "difficult" boxes ckaging boxes with special insulation . . . display shippers . . . bo f of cr with full printing . . . boxes that weather the weather. If ues, an box you need doesn't exist, we'll create and test it. An me. Co will be the sturdiest, safest box your product ever traveled thing—

# ANYTHING GOES...IN A




# CYTHINGS...BRIGHT THINGS

reatest p
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st it. An
traveled

You can step into this imaginative world of protective ckaging at any of our nation-wide plants. Each has a ff of creative design engineers, modern production techques, and years of experience in virtually any industry you me. Corrugated boxes for plain things, fancy things—*thing*—are designed and made at these St. Regis plants:

Birmingham, Ala. • Fullerton, Calif. • Salinas, Calif. • Jacksonville, Fla. • Atlanta, Ga. • Chicago, Ill. • Dubuque, Ia. • Hagerstown, Md. Minneapolis, Minn. • Jersey City, N.J. • Buffalo, N.Y. • Albany, N.Y. Canton, O. • Cleveland, O. • Coshocton, O. • Newark, O. • Crafton, Pa. • Mt. Wolf, Pa. • Pittsburgh, Pa. • Dallas, Texas • Garland, Texas Houston, Texas • Tacoma, Wash. • Grafton, W.Va. • Milwaukee, Wis. Or write: Container Div., St. Regis Paper Company, 150 E. 42 St., N.Y. 17, N.Y.

# ST. REGIS CONTAINER

For More Facts Write No. 316 on Information Card—Last Page

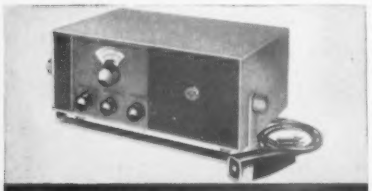
# Talk Two-Way

• on your job
• in your car
• in your office



**PERSONAL-COM 300**
**Hand-Held 2-Way Radio**

Rugged, dependable, fully transistorized 27-megacycle portable 2-way radio, designed specifically for business and industrial uses. Small and light, weighs less than one pound. Has 11-volt mercury battery for 50 hours' operation. Factory-installed plug-in module available to increase transmit power.



**MARK VII "Top-of-the-Line"**
**Citizens' Band 2-Way Radio**

Short-range communications facilities for business service and personal needs. Ideally suited for use on materials handling vehicles, or for 2-way conversation between fixed points. Also serves as excellent base station for hand-held radio. 6 or 12 V DC or 115 V AC operation.



**LOW-COST INTERCOM**

A complete line of quality Intercoms—wired, or wireless—designed for office, factory or home use, at lowest prices. Suitable for many applications, from simple wireless 2-way talk-listen systems to flexible, multi-unit systems with a variety of talk-listen-monitor options.

*Send coupon for complete information.*

RCA
The Most Trusted Name in Electronics
RADIO CORPORATION OF AMERICA

**RADIO CORPORATION OF AMERICA**
Special Products Department
Dept. AB-434, Meadow Lands, Pa.
Please send me complete information on the following:
☐ RCA PERSONAL-COM 300
☐ RCA Mark VII ☐ RCA Intercom
NAME .....
TITLE .....
FIRM OR ORG. .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....

For More Facts Write No. 317
on Information Card—Last Page


## The Purchasing Manual

(*Continued from page* 83)

also allow for exceptions he can't even think of. Instead of making his meaning clear, he only confuses.

(2) Trying to sound like the anonymous voice of the organization, the writer doesn't want to assert himself; he's afraid that he may unintentionally be setting up new policies. He seeks the safety of circumlocution.

(3) He writes in a stilted, verbose style in the mistaken belief that it impresses others.

The ability to write simply and clearly does not come naturally. An attempt to handle several ideas at once leads most people into verbal complexities. One way out is to make a draft, then rewrite it drastically. Another system is to simplify as much as possible beforehand: master the subject; organize it in a useful, logical sequence; prepare an outline; then write the draft and revise.

A few other hints for clear writing are:

— **Use active verbs.** "File all purchase orders numerically," not, "All purchase orders shall be filed numerically."

— **Omit needless preliminaries.** Instead of "It is the policy of the department to receive salesmen promptly," say, "Buyers shall receive salesmen promptly."

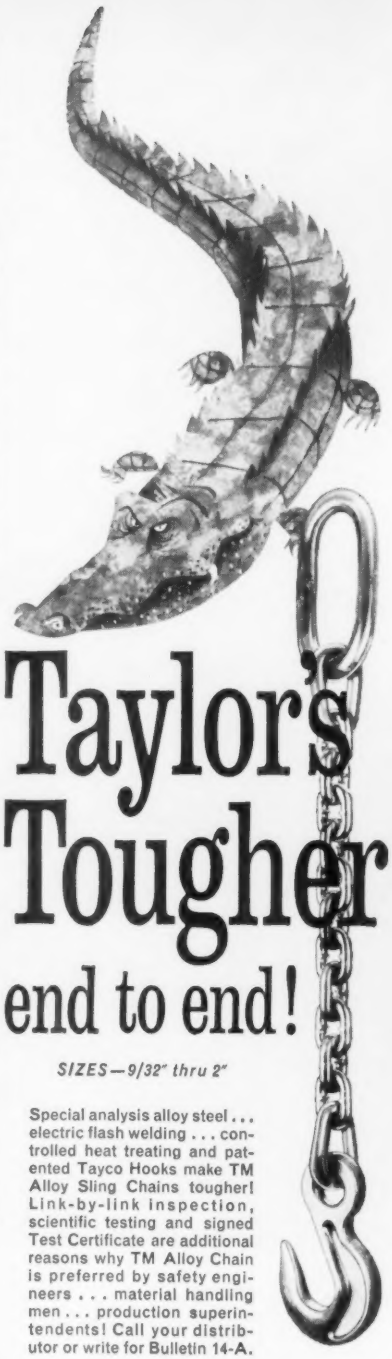
— **Use short sentences,** avoid wordiness. Cut out useless phrases such as "in view of the fact that" and "fat" words like "implementation" and "visitation".

— **Avoid the obvious** ("Vendor contacts are made by telephone, letter, or interview").

— **Avoid over-precise instructions;** they antagonize the reader. ("The buyer shall indicate in red pencil on the face of the requisition any missing information necessary to place the order").

— **Don't use technical terms** unless you are sure your audience understands their meaning.

(*Please turn to page* 258)

# Taylor's Tougher end to end!

*SIZES—9/32" thru 2"*

Special analysis alloy steel . . . electric flash welding . . . controlled heat treating and patented Tayco Hooks make TM Alloy Sling Chains tougher! Link-by-link inspection, scientific testing and signed Test Certificate are additional reasons why TM Alloy Chain is preferred by safety engineers . . . material handling men . . . production superintendents! Call your distributor or write for Bulletin 14-A.

*Chain is our specialty—not our sideline!*

Taylor Made CHAIN SINCE 1873

**S. G. TAYLOR CHAIN CO., Inc.**
General Office: Hammond, Indiana
Plants: Hammond, Ind., and Pittsburgh, Pa.

For More Facts Write No. 318
on Information Card—Last Page

# Look to

# FAFNIR

# for leadership in ball bearings



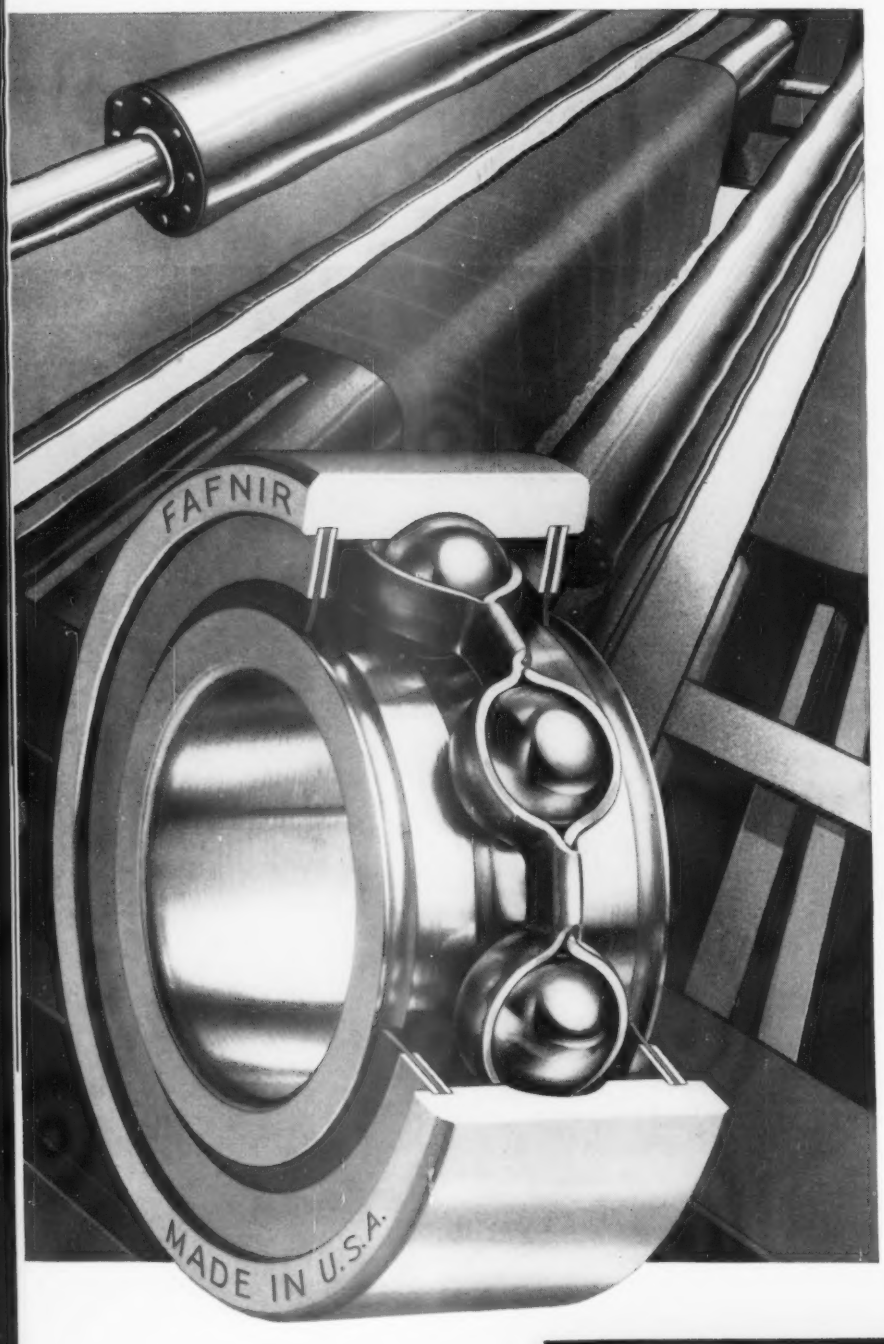

## Rubber-cushioned ball bearings that run super-quiet

Modern air conditioning keeps a home comfortable... and does it *quietly*. One reason: Fafnir Super-Quiet Ball Bearings. Developed by Fafnir, these bearings are cushioned in current-conducting rubber to absorb noise. The bearings themselves are specially honed for silent service. Look to *Fafnir* for leadership in ball bearings. The Fafnir Bearing Company, New Britain, Connecticut.

50 YEARS OF EXPERIENCE
IN THE MANUFACTURE OF
BALL BEARINGS

**FAFNIR**
**BALL BEARINGS**

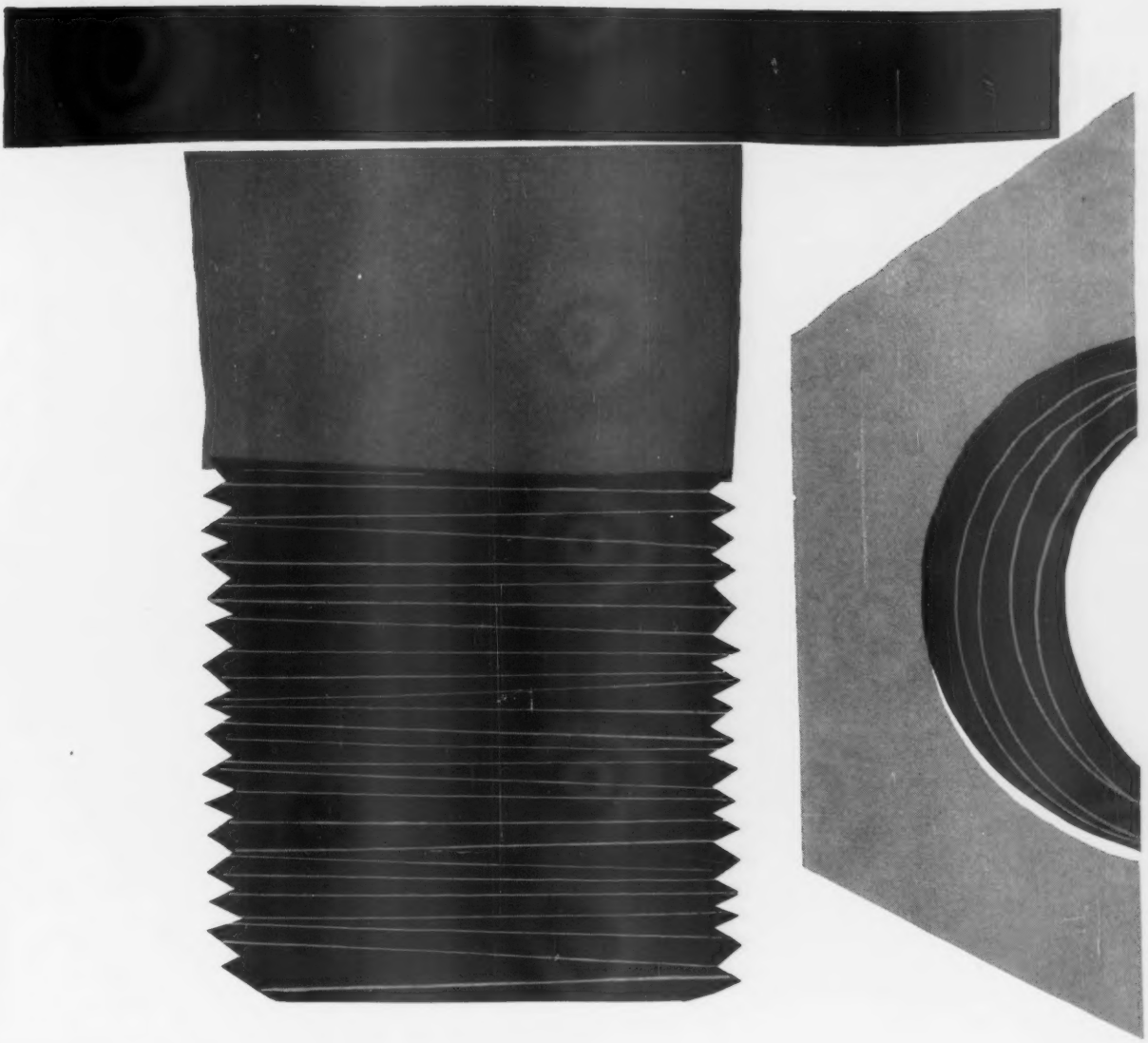
# Look to **FAFNIR**




## for stainless steel ball bearings that resist corrosion

Textile finishing can "finish off" bearings . . . fast! To control the corrosive effects of moisture, fumes, dyes, and acids, Fafnir developed stainless steel ball bearings with seals designed for extremely severe service. These bearings are used today in a wide variety of textile wet processing equipment. Look to *Fafnir* for leadership in ball bearings. The Fafnir Bearing Company, New Britain, Connecticut.

**FAFNIR**
**BALL BEARINGS**



**imagineering** that's the bold new look at Screw & Bolt. ■ Screw & Bolt *imagineering* solves Purchasing Agents' problems. *Imagineering* is that combination of planning, manufacturing know-how and the most modern facilities which puts the widest range of threaded fasteners right at your doorstep—in just one source ■ And *imagineering* means unexcelled quality and dependability of product—plus "on-time" delivery of what you want—when you want it—and where you want it! ■ When you think of threaded fasteners, think of *imagineering!* Call Screw & Bolt!

VMA 9391

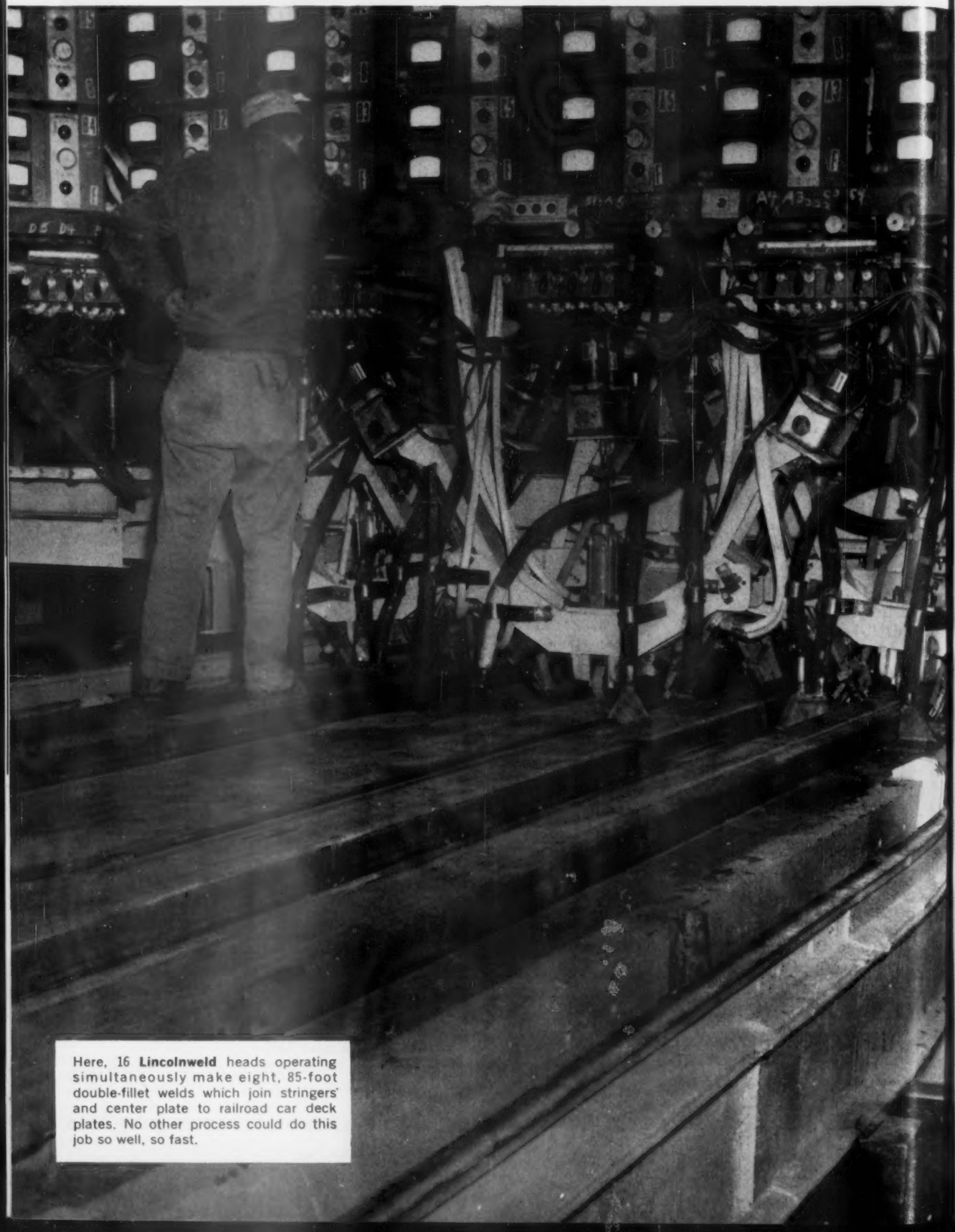
**SCREW AND BOLT CORPORATION**
**OF AMERICA** • P.O. BOX 1708, PITTSBURGH 30, PA.
Plants: Pittsburgh, Pa. Gary, Ind. Southington, Conn. Norristown, Pa. • Warehouses: Portland, Ore. Denver, Colo. Atlanta, Ga.

Imagineering... for greater fastener progress

For More Facts Write No. 320 on Information Card—Last Page

## You can count on . . .

# LINCOLNWELD SUBMERGED ARC WELDERS . . . .



Here, 16 **Lincolnweld** heads operating simultaneously make eight, 85-foot double-fillet welds which join stringers and center plate to railroad car deck plates. No other process could do this job so well, so fast.

# ...FOR PERFECT STARTS EVERY TIME

Photo on the left shows an expensive, fully-automated submerged arc setup with 16 welding heads. Press the button. Can you count on every arc to start perfectly? Every time? This manufacturer can. He chose **Lincolnweld** equipment. Because he knows its welding dependability, ruggedness and easy serviceability will protect his investment and guarantee production by consistently delivering good welds . . . fast . . . at low cost.



Here, single LAF **Lincolnweld** head is used to make large fillet welds on bridge sections at speeds not possible by any other process. Note conveniently-mounted controls which let operator govern process at all times. No involved electronic circuitry to get out of order. Components are easily serviced by shop electricians. Lincoln automatic submerged arc heads are made for AC or DC welding, in shop or in the field; can be used singly or in various combinations to get higher speeds, lower-cost welds.




For short production runs, manual **Lincolnweld** gives you the benefits of submerged arc welding . . . continuous wire feed, high speeds and deep penetration . . . without the expense of fixturing. Here, ML-3 gun, propelled at pre-set speed by serrated wheel resting on work, provides a degree of mechanization and control not possible with manual welding.



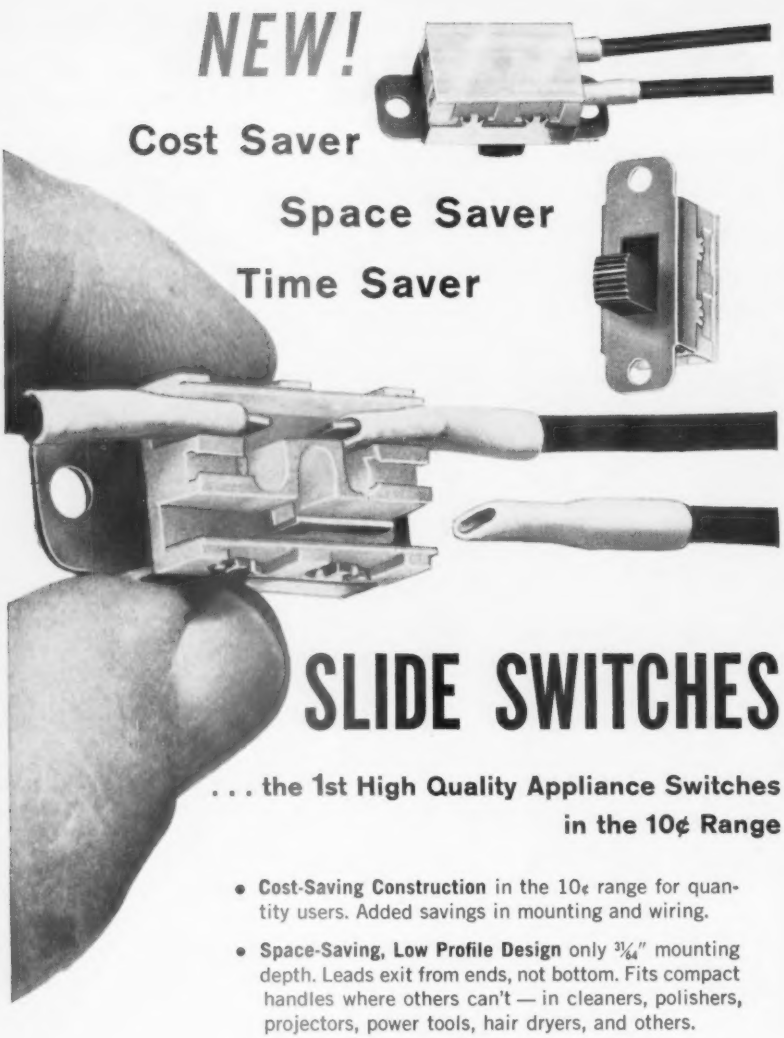
Parts with unusual configurations were once welded exclusively by stick electrodes. Now, however, you can take advantage of submerged arc welding even on these kinds of joints with the ML-3 or the ML-2 shown here because of their inherent versatility. Result? Higher speeds, lower costs, better quality . . . at low initial capital outlays. See **Lincolnweld** submerged arc equipment in action. Contact your local Lincoln field engineer, a specialist in welding. Or, write for information on this equipment now.

**THE LINCOLN ELECTRIC COMPANY • DEPT. 2851 • CLEVELAND 17, OHIO**

**LINCOLN WELDERS**

**THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT AND ELECTRODES**

For More Facts Write No. 321 on Information Card—Last Page




# SLIDE SWITCHES

**. . . the 1st High Quality Appliance Switches in the 10¢ Range**

- **Cost-Saving Construction** in the 10¢ range for quantity users. Added savings in mounting and wiring.
- **Space-Saving, Low Profile Design** only 3/64" mounting depth. Leads exit from ends, not bottom. Fits compact handles where others can't — in cleaners, polishers, projectors, power tools, hair dryers, and others.
- **Time-Saving Installation.** Quick-connect terminals accept AMP "Faston" or similar insulated or non-insulated receptacles.
- **Nyon-Insulated Terminals** with molded-in creepage barriers. Need no supplementary insulation. Snap-on nylon terminal shield (optional) completely covers "live" parts.
- **6-Ampere Rating** at 125 volts ac. U.L.I. inspected. SP-ST or SP-DT circuits.
- **Durable, Attractive** with smooth "feel" and positive detents. Molded trigger knobs in three standard lengths and in colors for modern styling.



Write for details on Types SS-37 and SS-37-1 from the world's largest slide switch manufacturer . . . **Electronic Components Division, Stackpole Carbon Company, St. Marys, Pa.**

**STACKPOLE**

BRUSHES FOR ALL ROTATING ELECTRICAL EQUIPMENT • **CERAMAGNET®** CERAMIC PERMANENT MAGNETS • ELECTRICAL CONTACTS • FIXED & VARIABLE COMPOSITION RESISTORS • SNAP & SLIDE SWITCHES • FERRITE CORES • GRAPHITE BEARINGS & SEAL RINGS • GRAPHITE HEATING ELEMENTS & ELECTRODES • HUNDREDS OF RELATED CARBON & GRAPHITE PRODUCTS

For More Facts Write No. 322 on Information Card—Last Page


## The Purchasing Manual

(*Continued from page 252*)

Who should receive a copy of the purchasing manual? The answer to this question depends on two things: What kind of manual is it? What is it supposed to achieve?

Both should be decided during the planning stages. When the manual's purpose is clearly understood there is no problem about who should get it.

To determine current practice, PURCHASING Magazine asked a representative group of P.A.'s "Who should get copies of the purchasing manual?" Responses were almost evenly divided between "heads of departments dealing with purchasing" and "key purchasing personnel and top management only." 9% felt suppliers should also receive copies.

The mechanics of distribution are simplest when the manual is permanently bound and there are no follow-up revisions. In this case the manual is sent out once and no permanent mailing list is required.

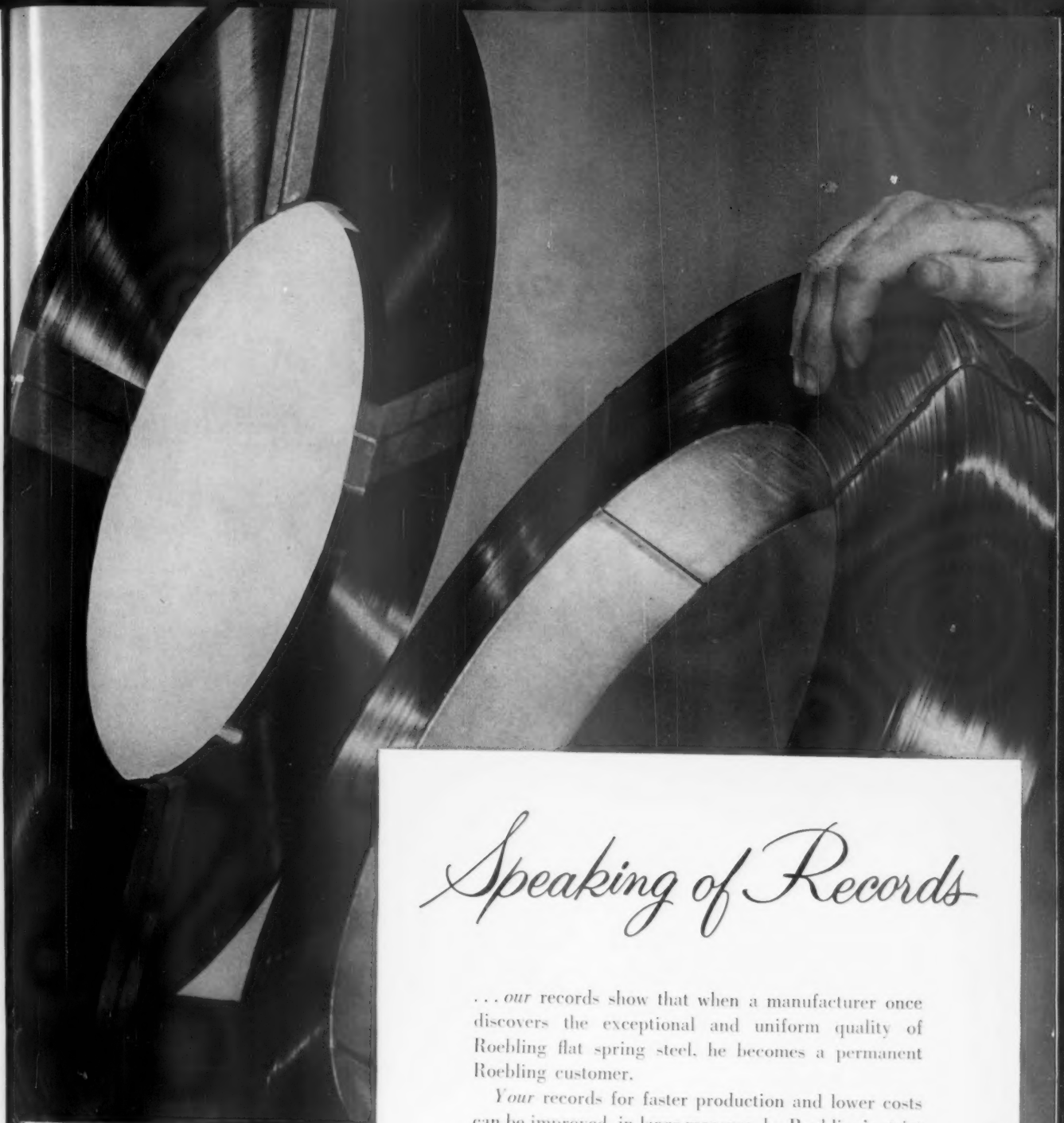
On the other hand, if there will be periodic changes, an accounting must be kept of those who receive the manual. Probably the best and easiest way to do this is to number each copy consecutively. Then, a simple listing of names or titles can be maintained in purchasing for use when revisions or additions have to be made.

If you are about to launch a new manual, be prepared for both resistance and apathy. But remember, your greatest support may come from top management which receives so many poorly prepared communiciations that it will welcome written matter that provides relief from the usual confusion and congestion. ► END

### FREE REPRINTS AVAILABLE

Reprints of the section of PURCHASING Magazine's January 2, 1961 issue on, "Purchasing: The Problems and the Promise", are now available on request. Covered by articles in the reprint are such subjects as: 'Management's Responsibility to Purchasing," "Purchasing's Responsibility to Management," "The Never-Ending Quest for Value," "Purchasing and Sales: Is there a Conflict?," "What Traffic Means to Purchasing," "Are You at a Career Crossroad?," "Purchasing and the Law."

Copies of the reprint may be obtained without charge by writing: Reprint Dept., Purchasing Magazine, 205 East 42nd St., New York 17, N.Y.



# *Speaking of Records*

. . . *our* records show that when a manufacturer once discovers the exceptional and uniform quality of Roebling flat spring steel, he becomes a permanent Roebling customer.

*Your* records for faster production and lower costs can be improved, in large measure, by Roebling's strict attention to supplying you with the finest flat spring steel available. When you need flat spring steel, specify Roebling. Write Roebling's, Wire and Cold Rolled Steel Products Division, Trenton 2, New Jersey, for complete details.



These are typical of the many types of quality parts produced from Roebling flat spring steel.

**ROEBLING**

*Branch Offices in Principal Cities*
*John A. Roebling's Sons Division • The Colorado Fuel and Iron Corporation*

*Roebling . . . Your Product is Better for it*




**bearings and parts**

Take the simple, sure, direct route to lower manufacturing and maintenance cost. Design into your product Bunting Standard Stock Bearings. You avoid inventory investment, delays, confusions, production problems by the immediate availability in small or large lots, from local distributors all over America, of hundreds of different stock sizes of completely finished cast bronze and sintered bronze bearings and bars, aluminum bars and Nylon shapes.

**Special design bearings not obtainable from stock can be procured immediately at low cost from Bunting fully equipped machine shops in five industrial centers. The wide range of sizes of Bunting Stock Cast Bronze and Sintered Bronze Bearings makes the alteration of a stock item to a special bearing easy and economical. Bunting Cast Bronze, Sintered Bronze, Aluminum Bars and Nylon shapes provide the materials for special requirements which cannot be made from stock bearings. Your local Bunting Distributor can arrange for such work.**

A large staff of bearing engineers in the field stands ready to assist in the use of these Bunting stock products and in the designing of bearings or components for extraordinary applications. Two big, modern plants assure ample production capacity at all times for bearings and parts made from all modern metals and materials.

**See Bunting's complete catalog, Sweets Product Design File 11C/BU or ask for Bunting's General Catalog, Form 158; Nylon Catalog, Form 32; Technical Handbook on Bunting Nylon, Form 33; The Technology of Bunting Aluminum, Form 46; Engineering Handbook of Powder Metallurgy, Form 1; Bunting Machine Shop Service, Form 4.**

The BUNTING Brass and Bronze Company
TOLEDO 1, OHIO
BRANCHES IN PRINCIPAL CITIES



BEARINGS, BUSHINGS, BARS AND SPECIAL PARTS OF CAST BRONZE, SINTERED METALS, ALUMINUM ALLOYS AND NYLON
For More Facts Write No. 324 on Information Card—Last Page

## Recent Decisions in Purchasing Law

(*Continued from page 99*)

and fanciful in its own right and selling it on its merit, not by confusing the public into mistakenly purchasing his product for his competitor's.

"The second comer must create a reputation of its own and not trade on the goodwill of another product already established at considerable cost and expense.

"It is so easy for the honest business man who wishes to sell his goods upon their merits, to select from the entire material universe which is before him, symbols, marks and coverings which by no possibility can cause confusion between his goods and those of his competitors, that the courts look with suspicion upon one who, in dressing his goods for the market, approaches so near to his successful rival that the public may fail to distinguish between them."

*Harold F. Ritchie, Inc. v. Chesebrough-Pond's, Inc., 281 Fed. 2d 755, July 29, 1960*

## Patent License-Back Agreements Held Legal

In a suit for the infringement of patents of a method for electrostatically coating articles with liquid coating material, such as paint, the defense charged that the patent owner, having violated the antitrust laws by license-back provisions in agreements with licensees, had forfeited his right to the monopoly of the patents.

Under these provisions the licensee agreed to assign to the patent owner improvement patents applicable to this machine and suitable for use in connection with it. The federal court confirmed the right of the patent owner to enter into such agreements. It said,

"A cross licensing agreement between the patent owner and another manufacturer was not for an unlawful purpose and its performance not a misuse of patents nor any violation of the antitrust law provisions nor a damage to

(*Please turn to page 264*)

for aircraft quality welding without cleaning costs—



# Aircomatic welding wire

Aircomatic (gas-metal-arc) welding wire *is chemically clean* when packaged . . . *chemically clean* when you open it . . . *chemically clean* when you use it.

Specify Aircomatic and you don't have to spend up to 20¢ a lb. to clean your wire. Just open the package, load your feeder and you're ready for aircraft quality welding.

You get X-ray quality deposits too . . . because the chemical composition of Aircomatic wire is rigidly controlled.

You get constant arc conditions and low electrical resistivity . . . because of uniform surface conditions of the wire.

You get a steady, uninterrupted feed rate when you use Aircomatic wire . . . because helix is low and wire finish is mirror smooth.

Another plus value . . . the tensile strength of Aircomatic wire is uniform. And, finally, wear on guide train and contact tube is minor when they're handling Aircomatic wire.

For current price schedule on Aircomatic quality finish aluminum, stainless, copper and steel welding wires . . . call Airco or look in your Classified Telephone Directory under "Welding Equipment and Supplies" for your nearest Authorized Airco Distributor.

AIRCO®

**AIR REDUCTION**

For More Facts Write No. 325 on Information Card—Last Page

Chrome
Plated
Steel



This mark tells you a product is made of modern, dependable Steel.

# How a "specially tailored" strip reduces production rejects almost 25% for Kromex

Kromex, Inc., Cleveland, Ohio, turns out a complete line of pantry ware, but they were having trouble with a square, mirror-finish chromium-plated cake cover that was made with a single deep draw. Rejection rate was a stunning 25%. They first tried a No. 3 finish for this application, but because of the very deep draw and the dense and smooth surface, satisfactory lubrication was near impossible. The result: Excessive draw marks and breakage. A regular No. 2 finish was then tried. The draw was successful. But buffing and finishing costs were prohibitive for this application.

American Steel and Wire salesmen conferred with our Metallurgical Department and suggested a specially tailored No. 3 finish. Reject rate dropped to less than 1% because the special surface was able to hold lubricant evenly, but smooth enough to draw and plate flawlessly.

Kromex is one more example of how strip, *tailored to end use*, works to produce a better product at lower cost. When you buy strip, you're buying a specific chemistry, temper, dimension, edge and finish that is consistently uniform within the coil or from coil to coil. Certain of your processing steps may actually be eliminated by using cold rolled strip, produced in our mills, and tailor-made for your specific end use.

Take a hard look at your production line and let our salesmen and metallurgical people look too. There's a good chance you can improve quality and cut production costs at the same time with *tailored-to-the-job* cold rolled strip from American Steel and Wire. American Steel and Wire Division, Rockefeller Bldg., Cleveland 13, Ohio. *USS and American are registered trademarks.*

**American Steel and Wire Division of United States Steel**

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Alabama, Southern Distributors
United States Steel Export Company, Distributors Abroad



# WASHERS

## ARE IMPORTANT PRODUCTS WHEN THE CHIPS ARE DOWN

It has been literally true in industry that "for want of a washer the order was lost" — meaning that for want of the right kind of washer, in the right place, at the right time, production delays caused havoc.

Washers *are* important products when the chips are down; that is why it is so important to realize that *all washers are not alike*. Not by a long shot.

Specialization in washers and stampings for almost 75 years has enabled Wrought Washer to perfect precision-manufacturing techniques that have made *Milwaukee Wrot Washers* the world's No. 1 brand . . . a position we have held for many years.

Better workmanship, 129,000 sets of dies instantly available, thorough washing, rust-inhibiting treatment, superior packaging . . . all these have contributed to making our fantastically complete line of washers the preferred brand everywhere.

*Friendly challenge:* Next time you have a washer or fastener problem, put it up to us. We'll solve it . . . or you'll know the reason why we cannot. That's a promise.



**PURCHASING PERSONNEL . . .** Free samples available. Request on your letterhead, mentioning types of washers your company uses most frequently.

WW/6/6061/NP

MILWAUKEE WROT WASHERS

**WROUGHT WASHER MFG. CO.**

2101 S. BAY ST., MILWAUKEE 7, WIS. • SHeridan 4-0771 • twx MI 277

**WORLD'S LARGEST PRODUCER OF WASHERS**

For More Facts Write No. 326 on Information Card—Last Page

## Recent Decisions in Purchasing Law

(*Continued from page 260*)

the licensee."

Here the court referred as authority to a decision by the United States Supreme Court of a controversy under similar circumstances in which that court had held that "an improvement patent, like a patent on a step in a process, has great strategic value. For it may on the expiration of the basic patent be a key to the whole technology.

### A Patent Is Property

"One who holds it may therefore have a considerable competitive advantage. And one who assigns it and thereby loses negative command of the art, may by reason of his assignment have suffered a real competitive handicap. For thereafter he will have to pay toll to the assignee if he practices the invention.

"But the competitive handicap or disadvantage which he suffers is no greater and no less, whether the consideration for the assignment be the right to use the basic patent or something else of value. That is to say, the freedom of one who assigns a patent is restricted to the same degree whether the assignment is made pursuant to a license agreement or otherwise.

"If Congress, by whose authority patent rights are created, had allowed patents to be assigned only for a specific consideration, it would be our duty to permit no exceptions. But here Congress has made no such limitations. A patent is a species of property. It gives the patentee or his assignee the 'exclusive right to make, use and vend the invention or discovery' for a limited period."

### Hold Agreement Legal

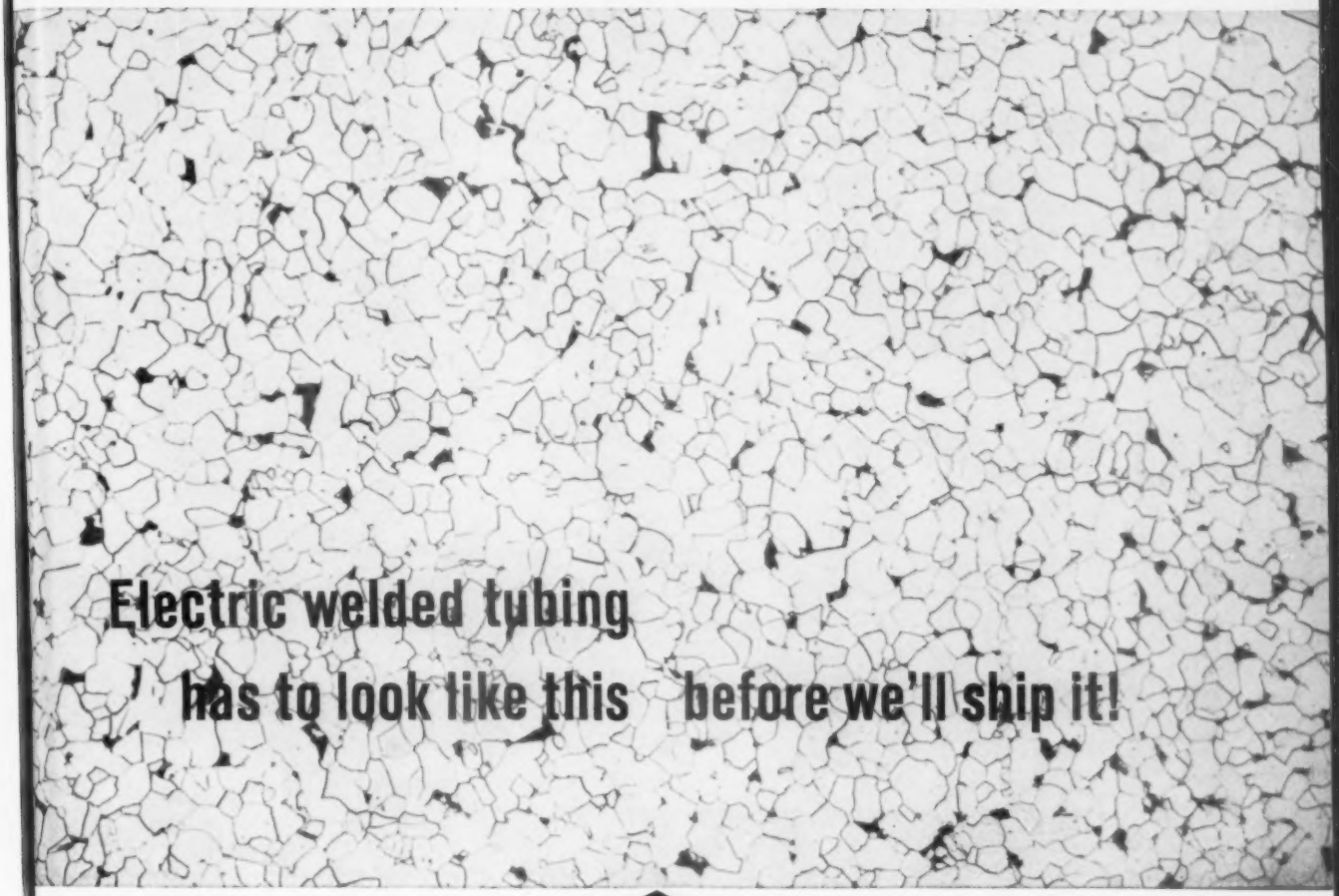
Basing its conclusion on this ruling the court sustained the legality of license-back covenants of this sort. "It does not appear," it said, "that any attempt is made to extend a patent monopoly beyond the life of the patent nor is the issuance of a license to use the system, covered by the patent in suit, conditioned on the acceptance of licenses under un-

(*Please turn to page 268*)

This mark tells you a product is made of modern, dependable Steel.

## Portrait of a perfect weld

Magnification—100X; Etch-Picral Nital



# Electric welded tubing has to look like this before we'll ship it!

In this photomicrograph of a section of USS National Electric Resistance Welded Steel Mechanical Tubing the weld section runs right down through the center of the picture above the arrow. The consistency of structure between the weld area and the rest of the tube shows that USS National Welded Mechanical Tubing has an important attribute—dependability.

Mechanical tubing must be flawless. It's used in so many critical applications that demand utmost strength, excellent surface inside or outside and extreme dimensional accuracy. National Tube's production methods assure this high quality.

Important advantages of USS National Welded Mechanical Tubing are its ability to reduce machining operations to a minimum or eliminate them entirely. For a given weight, it withstands more load than any other section. It resists bending stresses equally in all directions. In torsion, it provides maximum material distribution.

USS National Welded Mechanical Tubing is available in cold-drawn or hot-rolled sizes ⅜″ thru 5½″ and in wall thickness .035″ to .250″. All sizes can be obtained from National Tube Distributors located throughout the country. They will gladly show how tubing can reduce your costs. *See your USS National Tube Distributor.* *USS and National are registered trademarks*

**National Tube Division of United States Steel**

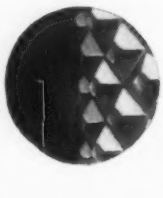
Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • United States Steel Supply Division • United States Steel Export Company, New York




## set a new standard

Bay State has just completed a concentrated research and engineering program designed to make Bay State mounted wheels the finest available anywhere. Results are paying off for users in more uniform grinding action . . . easier operation . . . and virtually complete elimination of defective materials and workmanship. These wheels are as nearly perfect as the most advanced abrasive technology can make them.

**POSITIVE WHEEL-TO-MANDREL BOND** Deeply knurled mandrel ends and specially formulated bonding material weld wheel and mandrel into a single, rock-solid unit. Constant, rigid quality control tests are made to check this Bay State feature.

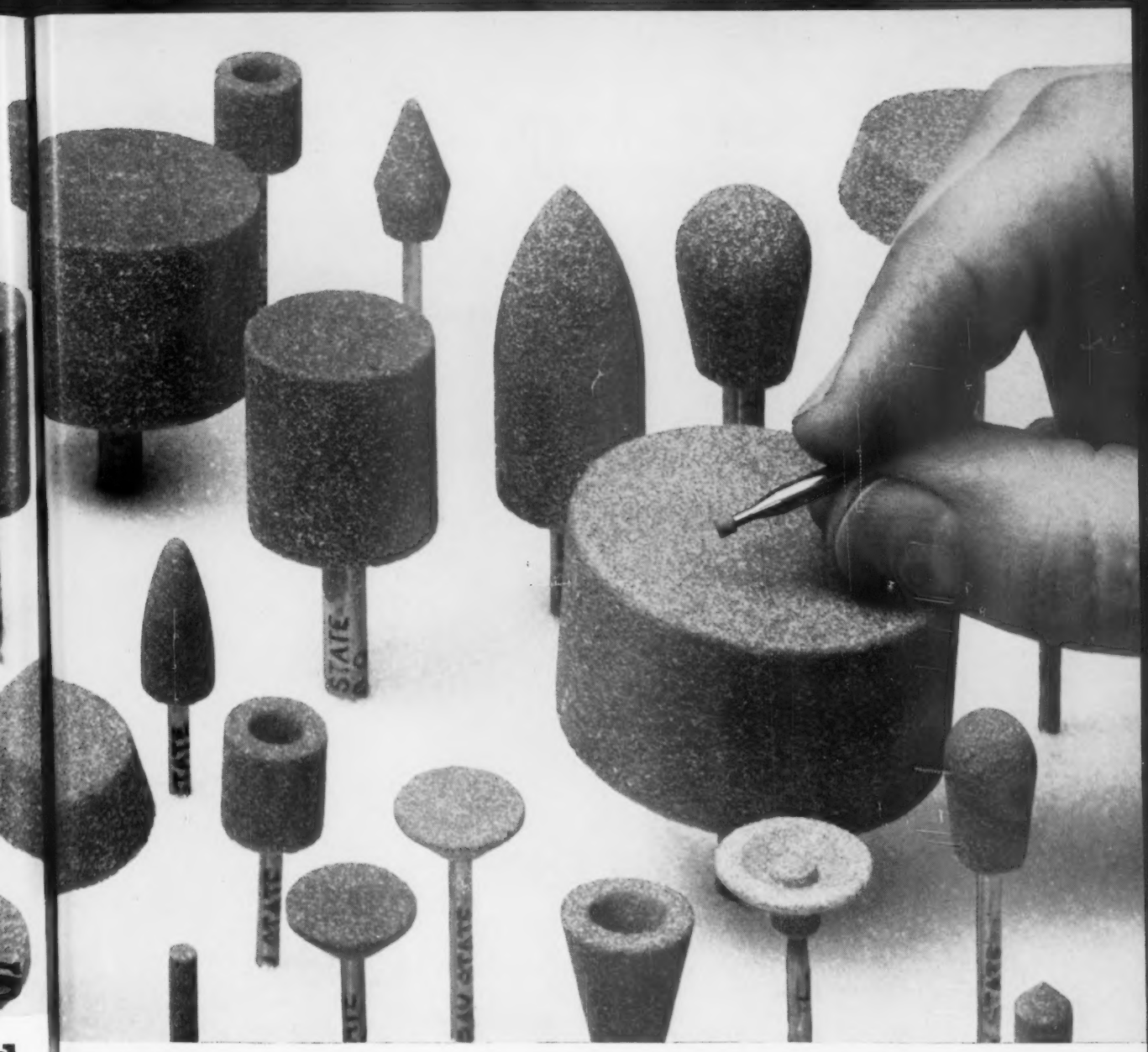


**SUPER-ACCURATE CONCENTRICITY** Every wheel is molded oversize and then *ground to shape on its own mandrel* so that it *automatically* becomes perfectly symmetrical and is perfectly concentric with the center of the mandrel itself. *Result:* Every wheel runs true from start to finish . . . no breaking in required . . . no hard spots, no soft spots, the whole wheel does a 100% job of grinding right down to the mandrel.



BAY STATE
WHEELS of PROGRESS

# BAY STATE



# of excellence for the industry

**MAXIMUM MANDREL UNIFORMITY** Mandrel diameters are uniform to very close tolerances. No fumbling when operator changes wheels because new wheels can be locked into place with a minimum change in the collet or chuck setting.



**COMPLETE INVENTORY IMMEDIATELY AVAILABLE** Hundreds of different combinations of shape, grit, size, porosity, bond and mandrel size are in stock, ready to be shipped to users immediately. Bay State's 30-page catalog makes it simple to choose the specs you need for any job.

For special mounted wheels, call your Bay State, direct or distributor, representatives. They are abrasive specialists. *Better grinding at lower cost . . . that is their business.*



Bay State Abrasive Products Co.
Westboro, Mass.

Please send me the new Bay State Mounted Wheel catalog with full technical information on the best mounted wheels available to industry.

*Company* _____

*Name* _____

*Address* _____

*City* _____ *State* _____

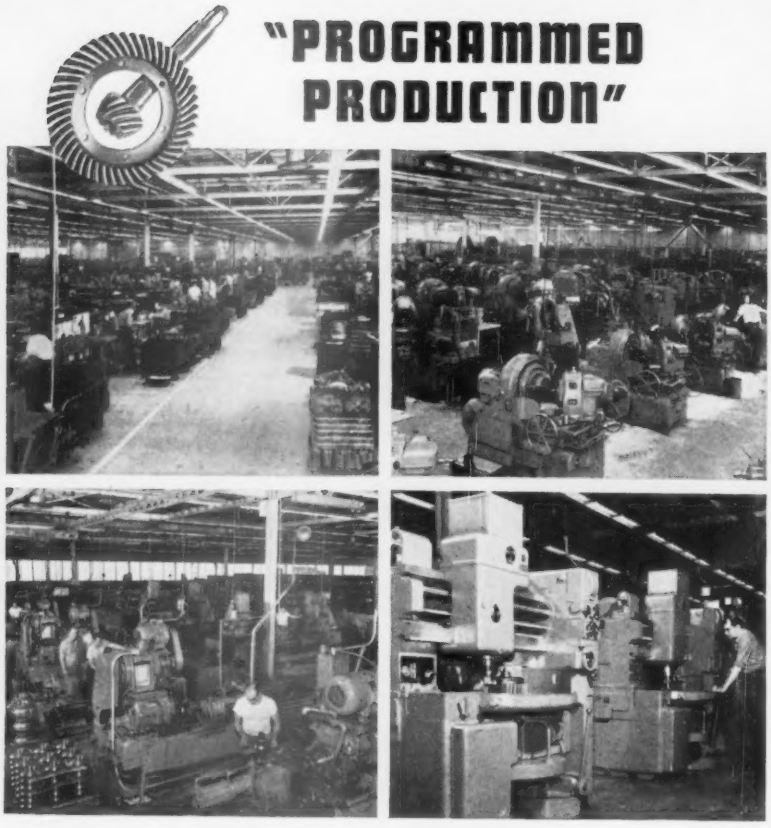
# ABRASIVES

Bay State Abrasive Products Co., Westboro, Massachusetts.

*In Canada:* Bay State Abrasive Products Co., (Canada) Ltd., Brantford, Ontario.

*Branch Offices:* Chicago, Cleveland, Detroit, Los Angeles, Pittsburgh. *Distributors:* All principal cities.

For More Facts Write No. 328 on Information Card—Last Page




...high productivity

AT **FAIRFIELD**

benefits users of gears

Simple arithmetic explains why, TODAY, many of America's leading machine makers no longer undertake to solve the problems involved in production of gears, differentials, and specially designed gear parts. For them, FAIRFIELD IS THE ANSWER!

Every facility is available at Fairfield—latest, cost-cutting, ultra-modern metalworking and heat treating equipment, kept busy by volume production, *plus* expert engineering counsel. This makes for ECONOMY and EFFICIENCY that can BENEFIT YOU.

Check with Fairfield NOW on your gear production schedules. As one of the nation's largest independent producers, Fairfield can usually give you quickest service available and handle any production requirement. *Become a Fairfield customer; it pays!* CALL OR WRITE.

**FAIRFIELD MANUFACTURING CO., INC.**

2321 South Concord Rd. • Lafayette, Indiana



*Gears and Differentials* For FINE GEARS *Made to Order for:*

TRACTORS • HEAVY DUTY TRUCKS • AGRICULTURAL MACHINERY • POWER SHOVELS AND CRANES
MINING MACHINES • ROAD GRADERS • BUSES • STREET SWEEPERS • INDUSTRIAL LIFT TRUCKS

For More Facts Write No. 329 on Information Card—Last Page


## Recent Decisions in Purchasing Law

(*Continued from page 264*)

wanted patents. No prohibited 'package licensing' is involved. A license-back clause is not illegal in itself."

*Binks Mfg. Co. v. Ransburg Electric-Coating Corp., 281 Fed. 2d 252, July 27, 1960*

## Buying Co-op Not Entitled To Volume Discounts

The Mid-South Distributors, is a cooperative of 23 jobbers, engaged in the sale and distribution of automobile parts through the southern states. A controversy between the group and the Federal Trade Commission ended in a cease and desist order in which the Commission ordered it to stop using its volume buying power to obtain unwarranted quantity discounts.

### Law Is Backed by Tradition

In its decision ordering the enforcement of these orders the federal appellate court recently said, "The system inaugurated and followed is a very simple one. It came into being because of the traditional pricing plan in the automotive parts business.

"Specified successively greater percentage reductions off the list price were offered to jobbers for specified increases in dealer volume of purchases. These cumulative volume rebates and graduated price schedules were accorded all purchasers and were available generally throughout the country.

"To achieve these graduated dollar volume levels the purchases for member-jobbers were made by the Co-op. The volume discounts were computed on the basis of the total purchases for all member-jobbers through the Co-op.

"After deducting the small operating expenses of the Co-op these volume rebates were distributed internally to member-jobbers as patronage dividends proportionately to each member-jobber's purchases for the year. The effect of this was to give member-jobbers a substantially lower cost than would have been

(*Please turn to page 271*)



# P&H HEVI-LIFT® HOISTS

## handle steel plate with a feather touch!

P&H Balanced Design Hevi-Lift hoists handle steel plate and welded structures in this metal-fabricating plant with precision and safety. Eight-push-button, variable-speed control permits the operator to handle even the largest, most awkward sheets quickly, accurately, safely.

The P&H hoists are mounted on single-leg gantries to provide complete 3-dimensional range of movement. In effect, they operate as junior-sized overhead cranes in this particular area of the plant. They are designed to work with the big P&H overhead cranes — seen in the background — that serve the entire plant.

Every part of the Balanced Design hoist has been balanced or matched with every other part for maximum strength, temperature, and performance characteristics. Important in a plant like this? You bet! You'll find Balanced Design Hevi-Lifts stand up far longer under heavier duty cycles, and with less maintenance, than any other hoist made today.

Find out more about these outstanding hoists. Write for bulletin H-55. Dept. 238, Harnischfeger Corporation, Milwaukee 46, Wisconsin.

**HARNISCHFEGER**

*Milwaukee 46, Wisconsin*

**P&H**
ELECTRIC HOISTS

*Offices in major cities... see Yellow Pages*

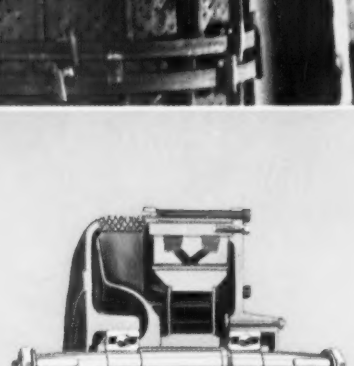


## FOR EVERY APPLICATION, THERE'S ONE CRANE OUTSTANDING . . . P&H!

This P&H overhead crane handles these tall foundry flasks and huge, yet fragile, cores as gently as a mother lifts a baby. With P&H Electronic Stepless control, in combination with P&H Magnetorque braking, the operator performs all the work of assembling flasks and cores smoothly, precisely, confidently—every time. Result: maximum production with *zero* damage.

You get this kind of performance only from a perfect marriage of operating and control characteristics . . . something Harnischfeger guarantees. Harnischfeger is the only crane manufacturer that makes . . . and matches . . . all electrical as well as mechanical components. And because we *make* all the parts, rather than *buy* and *assemble* them, your cost is agreeably low!

Next time *you* need any size overhead crane, send your inquiry to the world's largest crane builder: Harnischfeger, Milwaukee 46, Wisconsin.



**Cutaway view of P&H electric load brake... *heart of P&H Magnetorque Control... which* consists of a simple, indestructible rotor and stationary field through which braking forces are exerted electromagnetically.**

**HARNISCHFEGER P&H**

*Milwaukee 46, Wisconsin*

OVERHEAD CRANES

*Offices in major cities... see Yellow Pages*

## Recent Decisions in Purchasing Law

(*Continued from page 268*)

paid for the same kind and quantity of goods by such jobber individually or by an independent jobber."

*Mid-South Distributors v. F.T.C., (C.C.H.) 1961 Tr. Cas. 77,705, Feb. 23, 1961*

### False Figures Convict Telephone User

The prohibition against the use of mails to defraud is well known. A recent conviction emphasizes, however, that federal law also precludes the use of telephone, radio, or television for fraudulent purposes.

The statute provides, "Whoever having devised or intending to devise any scheme or artifice to defraud, or for obtaining money, or property by means of false or fraudulent pretenses, representations or promises, transmits or causes to be transmitted by means of wire, radio or television communication in interstate or foreign commerce, any writings, signs, signals, pictures or sounds for the purpose of excuting such scheme," commits a crime.

A conviction for violation of this statute before the United States Court of Appeals a few months ago was based on a charge of using telephone messages to induce the Guaranty Trust Co. to lend money to the Estey Organ Corp. by giving over the telephone false figures of "cash on hand and in the banks."

Here the defense maintained that since the offender had not initiated the telephone call he was not guilty of a violation of the statute. "The contention is untenable," said the federal court. "Neither the words of the statute nor any adjudicated case called to our attention, supports it. Every telephone call is antiphonal. The recipient of a call 'transmits sounds' over the wire when he replies and this offender did it 'for the purpose of executing such scheme or artifice.'"

*United States v. Bagdasian, 188 F.S. 683, Nov. 10, 1960*


INDUSTRIAL BRUSHES • BRUSHING METHODS • BRUSHING MACHINES • FOUNDRY PRODUCTION MACHINERY

# HOW TO END CONVEYOR BELT CLEANING PROBLEMS

*Unique OSBORN ROTA-MASTER® brushes do the job automatically . . . can cut your downtime and maintenance costs now*

**CARRYOVER** on rubber and fabric conveyor belts can cause destructive wear—and add costly downtime hours spent in frequent cleaning. Osborn Rota-Master® Brushes automatically and efficiently prevent buildup of such materials as chemicals, food, tobacco, chips, core sand, coke and ore on belts, rolls, snubber pulleys and return idlers.

Easy to install and adaptable to any system—Rota-Master Brushes clean conveyor belts with a unique, flexible sweeping action that does a thorough job. Brushes are self-cleaning, simple to adjust for correct brushing pressures.

An **O**sborn **B**rushing **A**nalysis—at no obligation—can pin-point exactly how you can cut costs and simplify your conveyor cleaning. *Write for details now. The Osborn Manufacturing Company, Dept. U-68, Cleveland 14, Ohio.*



**Write For Rota-Master® Brush Booklet . . .** includes complete application, specification and operational data for all types of conveyor belt cleaning requirements.



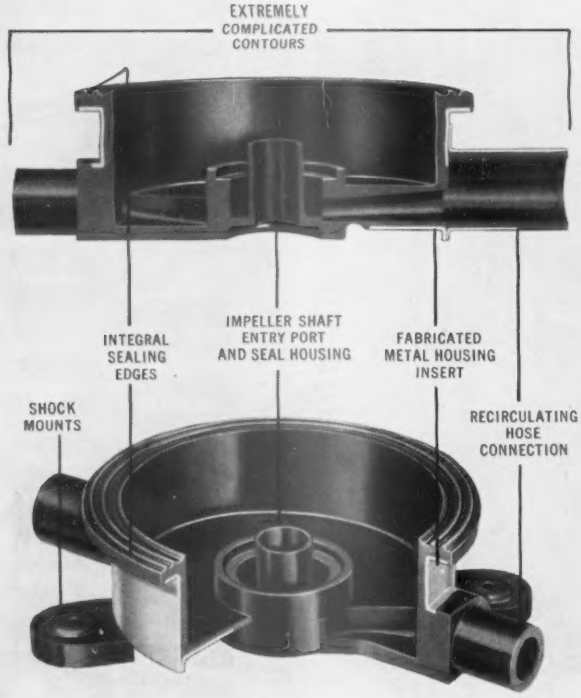
**Newest Osborn Rota-Master® Brush** cuts your costs three ways: Newly developed KORFIL®Fill material is extra-rugged . . . cleans more thoroughly, wears far longer. New lightweight extruded aluminum mounting is easier to handle and install. Mounting is re-usable . . . replacement brush stripe are easily inserted when finally needed. Available in 16", 18" and 24" face widths. Assemble in multiples for any belt size.

OSBORN

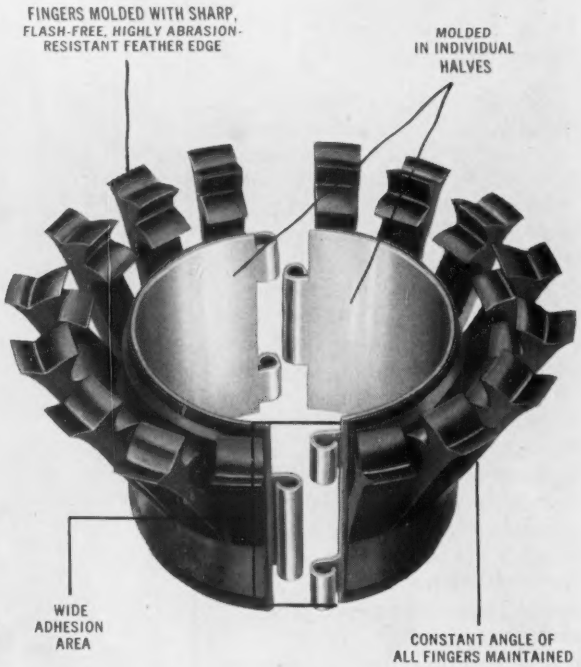
For More Facts Write No. 331 on Information Card—Last Page

# OHIO RUBBER

"CUSTOMEERED COMPONENTS BASIC TO INDUSTRY"




**DISHWASHER PUMP IMPELLER HOUSING**—part for major household appliance manufacturer. **Problem Solved:** Intricate precise, compression molding and uniform rubber adhesion to fabricated metal insert. Constant, residual water, at varying temperatures, made absolute adhesion mandatory to prevent seepage and corrosion. Stock had to be non-absorptive, non-swelling, heat, ozone and detergent proof. ORCO designed, built, and maintains the molds—delivers consistent, high-quality rubber adhesion on a production line basis to rigid, quality-control standards.



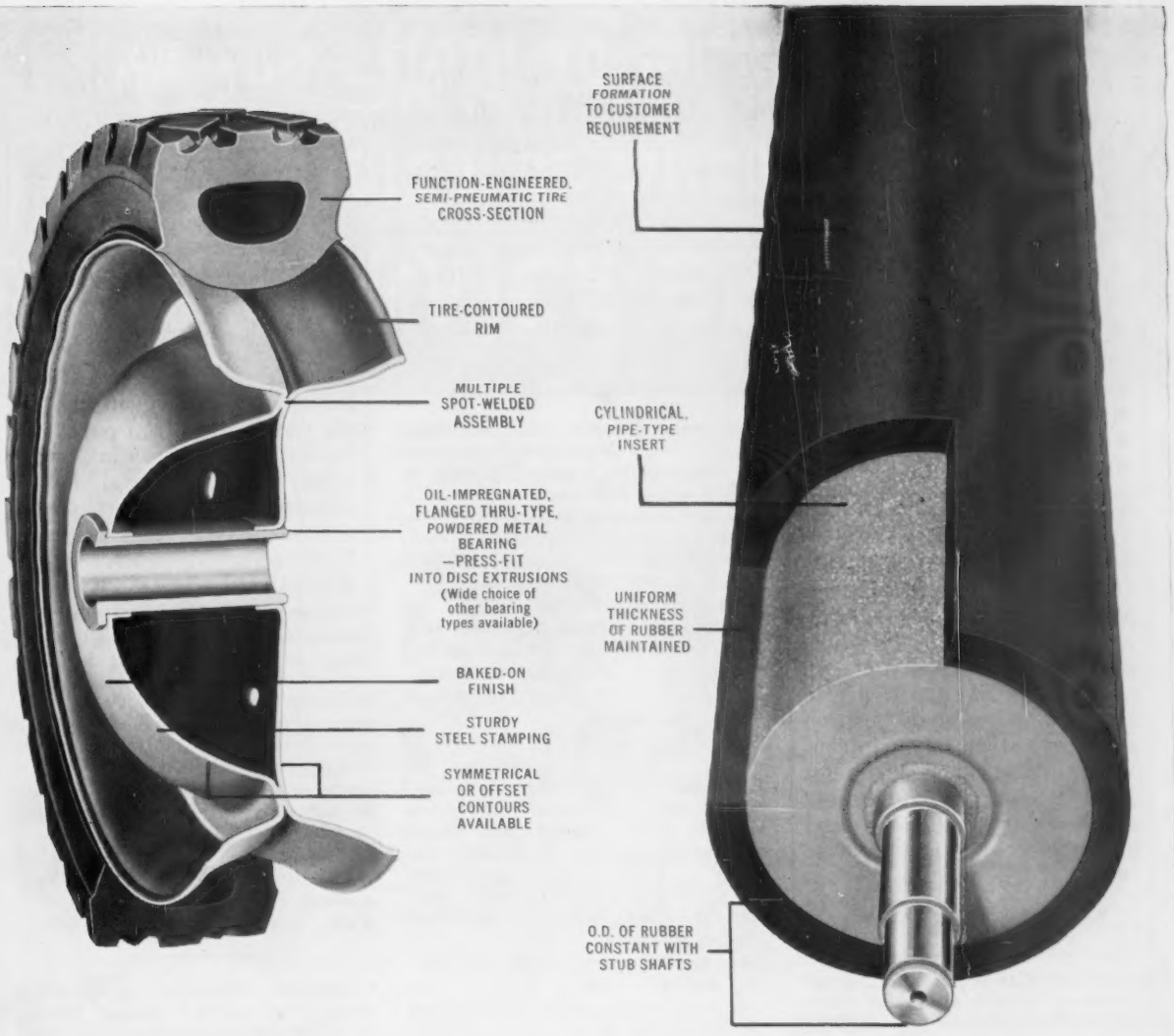

**"RECIPO" OIL WELL WALL CLEANER**—removes filter cake, mud, and foreign objects from bore hole. **Problem Solved:** Compression mold and bond-to-metal very flexible, high tensile, top quality natural rubber stock to extremely critical customer specifications. Design, build, operate, and maintain highly intricate molds to operate on normal production basis. Safeguard part against tremendous high stress concentration by engineering permanent, dependable, rubber-metal adhesion.

# How ORCO "customeered" rubber parts

## OHIO RUBBER IS THE GOOD SOURCE FOR THE O.E.M.!

As a "manufacturer's manufacturer", the OHIO RUBBER Company regularly serves, as above, many diversified industries and operates five, major, geographically-strategic plants to do so. From its facilities in depth, ORCO can—and does—deliver large quantities of natural rubber, synthetic rubber, silicone rubber, flexible and rigid vinyl, and polyurethane component parts—all "CUSTOMEERED" to your specifications.

To better serve the O.E.M., OHIO RUBBER designs, builds and maintains precision molds and dies . . . performs permanent bonding-to-metal . . . delivers injection, vacuum, compression, transfer, and automatic continuous moldings, as well as extrusions. And, all are backed by continuous statistical quality control, coordinated production control—and supervised by




**QUALITY SEMI-PNEUMATIC TIRES AND WHEELS**—working components for movable equipment. **Problem Solved:** Provide a reliable source in depth for standard duty, industrial duty, and special duty wheels with accessories—all equipped with a wide range of job designed and proved tires and treads to meet customer applications. Wheels and tires are load and speed rated; field and laboratory tested. Full line available. Custom requirements can be met. Engineering and technical service offered.

**HAY CONDITIONER ROLL**—integral component for agricultural equipment manufacturers. **Problem Solved:** Maintain uniform adhesion of 6′ long, inch-thick, rubber blanket molded on cylindrical, customer-furnished insert. Surface configuration of roll to vary according to customer's specifications. Stock, field and lab tested, must be highly abrasion-resistant—yet resilient enough to cushion impact and passage of incidental debris without interfering with continuous conditioning function of roll.

# aid product design

laboratory and engineering staffs second to none!

If you have a part that may work better as rubber, or with rubber, ORCO is eager to serve you. For complete details, at no obligation to you, write or phone us, today!

***FREE!*** *NEW RUBBER DESIGN DATA*

These informative, factual manuals should be a part of your working library.

*WRITE TODAY!*




*Factories: Long Beach, Calif. • Fort Smith, Ark. • Willoughby, O. • Conneautville, Penn. • Stratford, Conn.*

ORCO **THE OHIO RUBBER COMPANY**

General Office • *WILLOUGHBY, OHIO* • WHitehall 2-0500

A DIVISION OF THE EAGLE-PICHER COMPANY

For More Facts Write No. 332 on Information Card—Last Page

DE-61

# Employment Service

### ASSISTANT PURCHASING AGENT

To handle chemical purchases for pharmaceutical firm. Should have knowledge of chemistry and experience in purchasing. Offices located in non-urban Central New York State community. Company offers up to date salary and fringe benefit program. Write and forward resume to: Employment Manager, The Norwich Pharmacal Company, Norwich, New York.

### INDUSTRIAL BUYER

A large industrial organization located in Syracuse, New York, needs a college graduate with business or industrial engineering degree and 1-2 years industrial experience to train for permanent position as an industrial buyer in central purchasing department. Must be aggressive, possess a pleasing personality and ability to learn quickly. Please send detailed resume, including salary requirements in confidence to: Box 511.

**Experience:** Nine years as P.A. directing staff of three in $6 million annual food purchases of over 2,000 carloads. Eleven years previously assistant P.A. with same firm. Background in related functions of traffic, scheduling, packaging, sanitation, materials handling, inventory-quality controls. Successful record in overcoming shortages, transportation strikes, delivery delays.

**Education:** Two years' college courses in Bus. Admin.

**Will relocate.**

Write: Box 103

---

**Experience:** Head of purchasing dept. Marine Sub. of top national corp., annual purchases exceed $2,000,000. Over ten years purchasing background, covers all phases of the profession including planning, organizing and management. Attends regular policy conferences of corporate officers. Extensive buying experience in all major items.

**Education:** Attended Pace College night school studying selling, marketing and advertising. Previous studies include commercial law, accounting and bookkeeping.

**Will relocate.**

Write: Box 101

### MALE OR FEMALE BUYER

To purchase scientific and medical equipment and supplies; good salary; excellent benefits; experience required; 30 to 45 years of age. Write: Personnel Division, Indiana University Medical Center, 1100 W. Michigan, Indianapolis, Indiana.

**Experience:** Fourteen years experience in wholesale refrigeration, heating and air conditioning supply business. In highly responsible managerial capacities, encompassing purchasing, traffic, inventory control, sales and office management; last seven years as purchasing agent. Resume upon request.

**Education:** High school, Detroit Air Conditioning Institute; seminars relative to purchasing and management procedures at University of Detroit.

**Will relocate,** but prefer Detroit area.

Write: Box 99

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**Experience:** Machine shop background from small precision production through heavy jobbing, tool design, methods engineering to design eng., last 8 years sr. buyer in subcontracting on R & D programs. Have excellent knowledge of fibre-glass reinforced plastics processes.

**Education:** 2 years college—engineering, credited course in time and motion study, various other night courses in engineering.

**Will relocate,** East coast preferred.

Write: Box 92

### HOW TO APPLY

Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacements or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence — whether for forms, or in answer to an employment advertisement, to: Box No. Employment Service Department, Purchasing Magazine, 205 East 42nd Street, New York.

### MANAGER OF PURCHASES $10,000—$14,000 MIDWEST

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**Experience:** 11 years ass't. P.A. all phases industrial purchasing for large automotive and aircraft accessory manufacturer. Extremely heavy in subcontracting, machined parts and all types of tooling. Additional experience includes 10 years tool control and 5 years receiving. Supervisory capacity for last 16 years. Presently employed by same company.

**Education:** High school graduate. 2 years night school in machine shop practice.

Write: Box 91

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**Experience:** Purchasing of electronic components, printed circuit boards, hardware and fabricated parts in compliance with engineering specifications. Responsible for inventory control and maintaining current parts lists. Acted as liaison between engineering and purchasing departments. Responsible for specification of electronic components. Engineering background.

**Education:** U.C.L.A. now attending. Los Angeles City College, 2 years, engineering. Radar Repair School, New Jersey, 1 year.

Los Angeles County only.

Write: Box 100

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**Experience:** Fifteen years in purchasing, sales and manufacturing. Now purchasing manager for multi-division manufacturer. Responsible for all procurement. Direct 12 people. Prior positions factory manager and purchasing agent. Desire management position where creativity and imagination bring maximum results.

**Education:** B.S. Commerce Drexel Institute, Executive Program Univ. of California, Los Angeles.

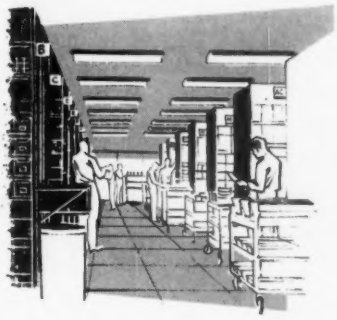
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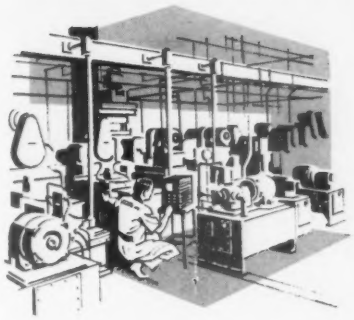
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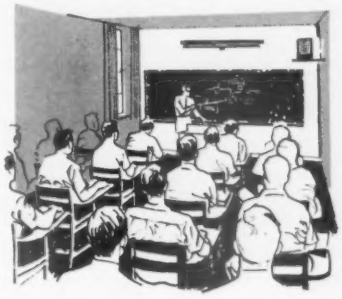


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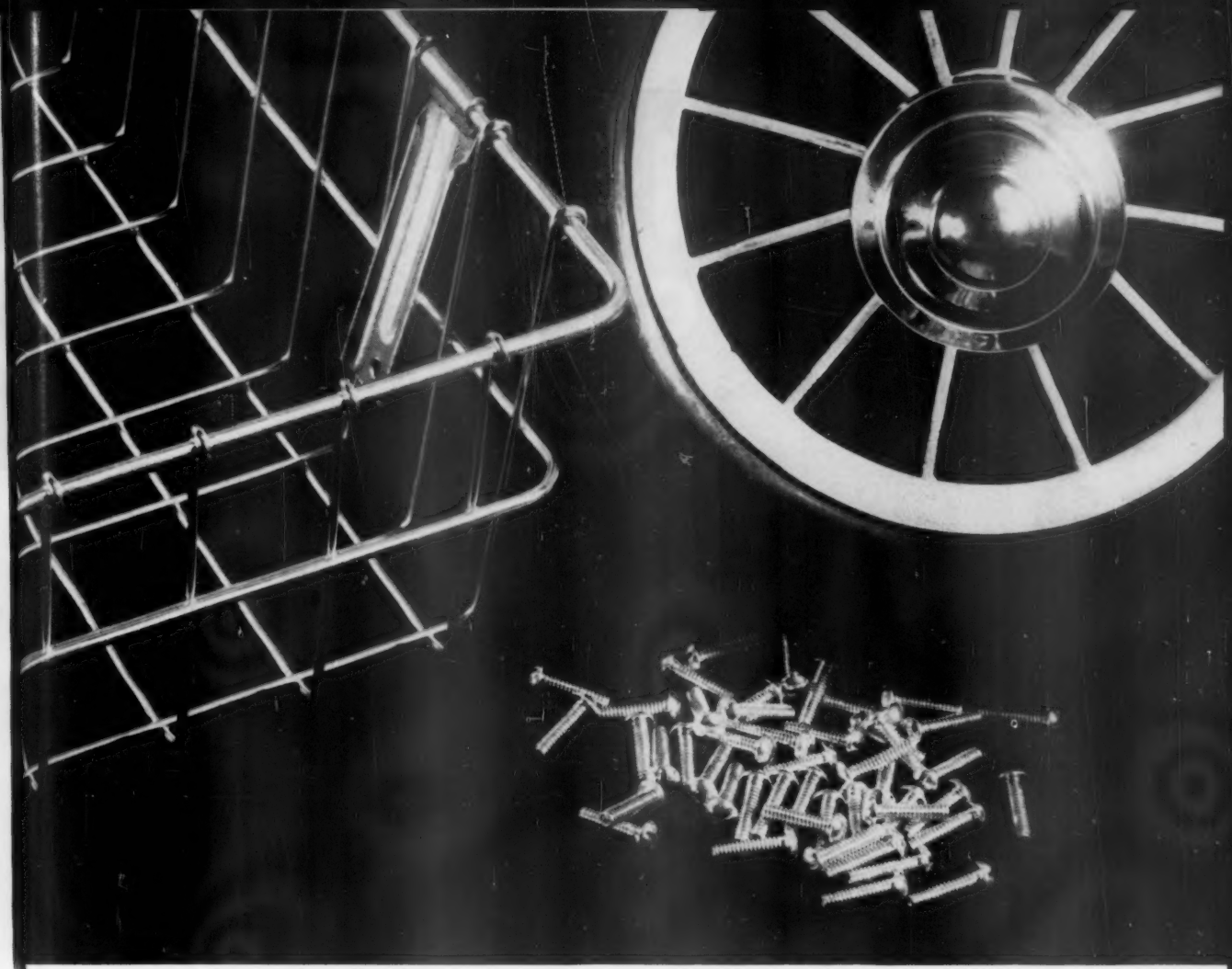
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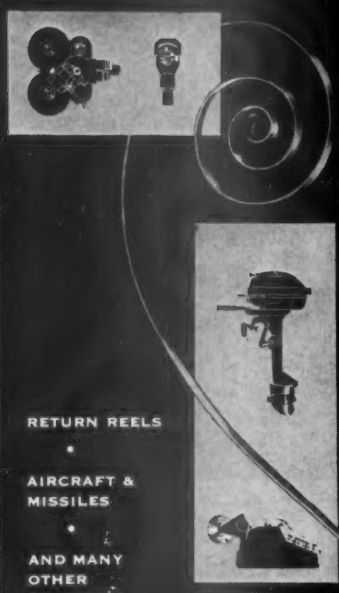
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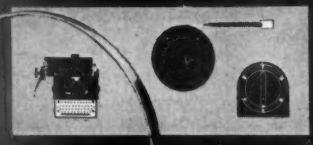
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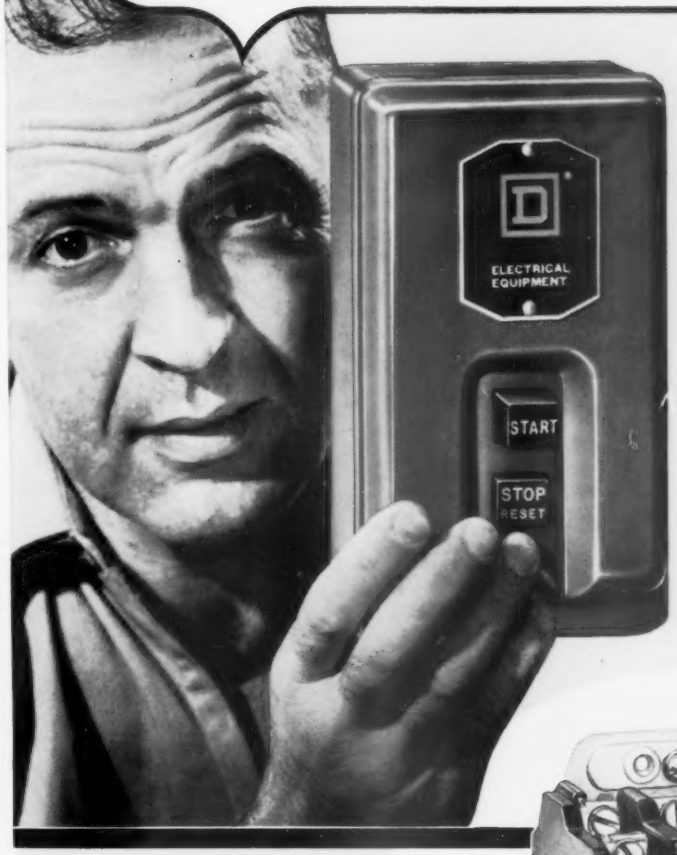
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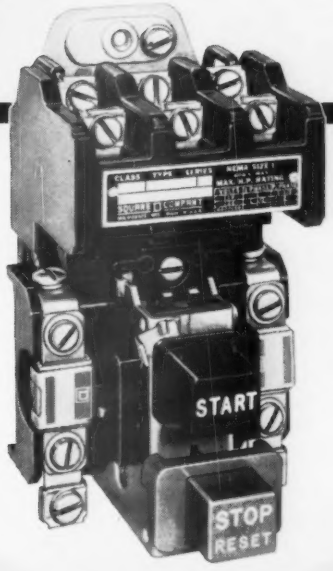
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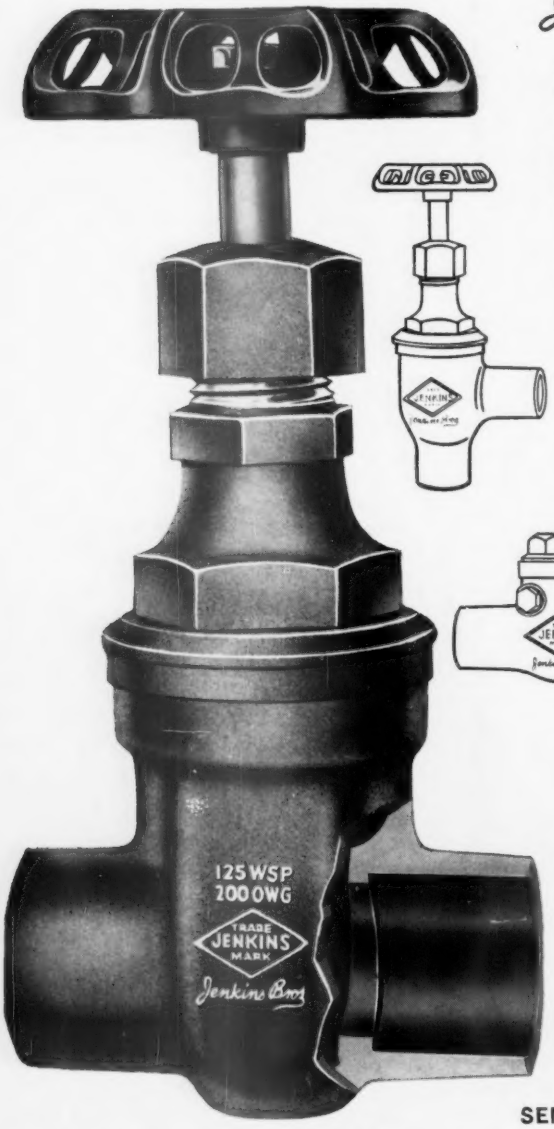
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